Ontario

Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario

Submissions

v. 2

INDEX OF WRITTEN SUBMISSIONS

BINDER VOLUME NUMBER: 2

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018	Johns-Manville Canada, Inc.	Industry	I Health II Workplace III Buildings	Yes	Yes
019	Government of Quebec, Ministry of Energy and Resources (Mines)	Governments	II Workplace III Buildings IV Other	Offered	No
020	Toronto Occupational Health Resource Committee	Other Organizations	I Health II Workplace V Institutional VII Workmens Comp.	Yes	No
021	Dow Chemical of Canada, Limited	Industry	II Workplace	Offered	No
022	Board of Education for the City of Toronto	~~Other Organizations~~ Governments	III Buildings V Institutional	No, but RCA Interim Report requested	No
023	C.U.P.E., Ontario Educational Institutes Co-ordinating Committee	Labour	III Buildings	Yes	Via CUPE, Ontario Region
024	C.U.P.E., Local One	Labour	II Workplace III Buildings V Institutional	Yes	Via CUPE, Ontario Region
025	Communications Workers of Canada, Ontario Region	Labour	II Workplace III Buildings	Yes	Yes
026	Asbestos Victims of Ontario	Labour	I Health II Workplace VII Workmens Comp.	Yes	Yes

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January 15, 1981

Royal Commission on Matters of Health and Safety
Arising from the Use of Asbestos in Ontario

180 Dundas Street West
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Gentlemen:

Johns-Manville Canada welcomes the opportunity to submit the enclosed comments to the Royal Commission. We have attached comments by Dr. Paul Kotin on the issue of Asbestos-Related Diseases and by Dr. Gerald Chase on the issue of Measurement of Asbestos Levels. Further, we fully support the comments of the Asbestos Information Association/North America and urge the Commission to give consideration to the recommendations submitted by AIA/NA on a work practices approach for regulation of asbestos use in the construction industry.

In announcing the creation of the Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario, the Minister of Labour, the Honourable Robert G. Elgie, M.D., listed four items as the terms of reference of the commission, one of which is:

> "To identify the relevant data related to asbestosis, mesothelioma, and other diseases and health hazards of persons working with, or exposed to, asbestos in Ontario..."

The Commission singled out four studies as worthy of early attention in trying to reach this objective and also enlisted the participation of a number of highly qualified representatives of the medical/scientific community to comment on the health aspects of asbestos during the two public meetings scheduled in 1980.

As the Commission's work progresses, it will become evident that from the health aspect, asbestos is one of the most widely studied, chemical substance being used in commerce today. Although continuing research is needed in the area

of asbestos and health, there is a significant body of data that can be used by the Commission to prepare its recommendations.

Problems in assessing the current health risks associated with asbestos exposure arise from an inability to differentiate between the high exposure levels of years ago and the current exposure levels of today which are many times lower. Because of the latency problem, we will probably continue to see some disease in the workforce that was first exposed decades ago. Since the 1960's, however, new technology, better engineering controls, and improved industrial hygiene practices have resulted in tremendous reductions in levels of exposure in the workplace.

As Dr. Kotin concludes in his comments:

> "We are convinced that a review of all the data presented will clearly demonstrate that asbestos exposure can be controlled so that working with asbestos need not result in any hazards to health."

Johns-Manville Canada looks forward to cooperating further with the Royal Commission to improve its understanding of the issues before it.

Very truly yours,

T. S. Patterson

T. S. Patterson
Director, Corporate Relations

SUBMISSION TO THE

ROYAL COMMISSION ON MATTERS OF HEALTH AND SAFETY

ARISING FROM THE USE OF ASBESTOS IN ONTARIO

Prepared January 14, 1981 by
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Asbestos is a generic term for a group of fibrous crystalline hydrated silicates. It is a mineral that is part of the earth's crust, so man has been exposed to this naturally occurring substance since the beginning of time. Asbestos occurs in a variety of chemical and physical forms, and each form has particular uses. The chemistry of asbestos fiber appears, at this time, to play only a minor role, if in fact any role at all, in relation to potential hazard. There is a relationship, though, between the geometry of asbestos fiber and the potential hazard. Physical characteristics, specifically fiber size, surface character, internal architecture and substructure, are all related in varying degrees to biological effect.

The potential hazard posed by asbestos exposure manifests itself in a group of asbestos-related diseases, namely asbestosis, mesothelioma (of the chest cavity or pleura, or of the abdominal cavity or peritoneum), and cancer of the lungs. In addition, data suggesting the relationship of asbestos exposure to gastrointestinal cancer have been published. The accumulated data are contradictory, however, with reports by McDonald[1,2] and Selikoff[3,4] indicating a slight excess of gastrointestinal cancer in asbestos workers and studies by Newhouse[5] and Dement[6] showing no increased risk. Two factors make the data associating asbestos exposure with the causation of gastrointestinal cancer unconvincing:

1. The assumption that gastrointestinal cancer represents

cancer of a single organ, when, in effect, it is cancer of an organ system. Studies of cancer of the various segments of the gastrointestinal tract (esophagus, stomach, colon and rectum) show distinct and, for the most part, unrelated epidemiological characteristics.

2. Unlike lung cancer, our knowledge of the causative factors in gastrointestinal cancer is very limited. Therefore it is premature to associate slight increases with asbestos exposure when other factors (for example, diet or genetic predispositions such as polyposis) may be the determinants.

Thus the combination of the paucity of data and the variability of the components of the gastrointestinal system place any postulated increased risk associated with asbestos truly in the realm of speculation.

Another disease sometimes listed as asbestos-related is cancer of the larynx. But this cancer, like lung cancer, is unequivocally related to cigarette smoking, and the association with asbestos exposure has been limited virtually to cigarette smokers.

The chronic effects of asbestos exposure conform to recognized principles of pharmacology, toxicology, biochemistry, and pathophysiology. Following onset of exposure to asbestos there is a long latent period before either stigmata of exposure or clinical disease appears; for the latter, the latent period is measured in decades or segments of the

total life span.

Exposure is also in accord with recognized principles of dose response in relation to disease development and appearance. Dose, the product of concentration or intensity of exposure multiplied by duration of exposure, or time, is an indispensable element in the analysis of hazard, and dose-response considerations apply at all levels of response, from the single cell to the intact host. In addition, a no adverse effect level of exposure, or threshold, has been demonstrated for the asbestos-related diseases of asbestosis[7] and lung cancer.[8]

Finally, multifactorial etiology plays an important role in considering the potential effects of asbestos exposure. There are two dimensions to multifactorial etiology: First, it means that there can be several environmental agents with the capability of producing a particular disease. Second, antecedent, concurrent or sequential exposure to certain environmental agents can have a combination effect, increasing the risk to some diseases.

It is important to understand the fundamental principles because of their relationship to potential risk from exposure to asbestos.

The most important principle is dose response. Based on experience with other environmental agents such as chromates, nickel, hydrocarbons, and silica, it was anticipated that a reduction in exposure to airborne asbestos fiber would, as a

corollary, result in a lowering of the incidence of asbestos-related disease--and in fact this has been the case with asbestosis, which permits quantification by virtue of its unifactorial etiology, and with lung cancer, which can also be quantified because of the ability to correct for cigarette smoking in epidemiological studies.

The lowering incidence of asbestos-related disease can be seen in the research by Dr. Irving Selikoff, which represents perhaps the largest population studies on asbestos exposure. In a research plan submitted in 1978 to the Assistant Secretary, Program Evaluation and Review, Department of Labor, Dr. Selikoff discussed clinical latency and dose response and stated that:

> In the early days of the asbestos industry, industrial hygiene precautions were virtually non-existent. The intensity of exposure was such as to produce, in many cases, rapidly progressive, disabling asbestosis, sometimes even fatal in 10 years or so. But as conditions improved to some extent in the thirties, forties and fifties, exposures diminished and the disease became less overwhelming and longer in its course.[9]

In a section on "Projections and estimates, 1980-2020, for those exposed 1940-1975," he further states that "it is of interest that with less exposure, not only is there less disease but that disease which occurs tends to have a significantly longer induction period."[10]

A number of other studies have verified dose-response relationships. These include research by Doll,[11] Knox,[12,13] Peto,[14] McDonald,[15,16] and Enterline.[17] The attack rates reported in each of these studies differ and to the extent data are

available, the increased risks are associated with the highest levels of exposure and decline associated with reducing levels of exposure. The risks differed between population groups in these studies and the difference could be correlated, again, with differences in exposure levels. The risks also differed within the same population with the passage of time, once more demonstrating a response to reductions in exposure levels.

Industry experience also shows the importance of dose response. James Hardie & Coy. Pty. Ltd. began medical surveillance of its employees in the late 1960's and found that 1.4 men in every 100 were diagnosed as having pulmonary asbestosis in varying degrees. Since then an average of 4 new cases out of a workforce of 4,000 have been identified each year. That is 1 in every 1,000 or 0.1 percent, in contrast to the 1.4 percent in the late 1960's. Dr. E. Longley, Medical Officer of the Dust Diseases Board, New South Wales, has stated that precautions taken by the asbestos industry to protect its workers had greatly reduced their exposure to asbestos dust, concluding "I doubt if there will be many more cases, if any, from asbestos factories in Sydney."[18]

The trend toward a declining incidence of asbestos-related disease among those occupationally exposed has been recognized by government regulatory agencies. Dr. Anthony Robbins, Director of the National Institute for Occupational Safety and Health (NIOSH), testified at the March 1, 1979 hearing

on asbestos before the Subcommittee on Labor Standards of the House Committee on Education and Labor:

> A NIOSH epidemiological study of workers employed in an asbestos manufacturing plant reveals some interesting trends in asbestos-related diseases in this country. The first mortality study reported in 1973 a statistically significant excess of deaths among both men and women workers due to lung cancer, asbestosis, and heart disease. In males an excess of suicide was also shown. However, the workers were only followed for vital status through 1967.
>
> A follow-up mortality study, which reported on the vital status of these same asbestos workers through 1975, again showed an excess of deaths due to lung cancer, asbestosis, heart disease, suicide, and a new observation, mesothelioma. The more recently observed occurrence of mesothelioma among these workers is not surprising, because of its long latency period.
>
> Mortality statistics from this research suggest that the incidence of asbestosis at this plant has peaked and leveled off, and that lung cancer has also peaked and is beginning to level off. Mesothelioma, on the other hand, is just beginning to be observed among workers in this study population.

A comparative morbidity study of Johns-Manville employees is now only a few months from completion. This study compares the morbidity experience of the current workforce with 15 years of work history with that of an older workforce also with 15 years of work history and with onset of exposure dating back 40, 30 and 20 years. The purpose of the study is to determine whether the data will demonstrate what the medical literature already has shown, that is, a progressive decrease in the incidence of asbestos-related disease as exposures have been reduced. We do know that Johns-Manville has made considerable progress in the control of airborne asbestos fiber in all its operations. Appendix A contains fiber dust counts from 1969 through 1978 at representative

Johns-Manville locations, which indicate that not only is Johns-Manville in compliance with the current U.S. Occupational Safety and Health Administration (OSHA) standard of 2 fibers per cubic centimeter of air, time-weighted average over an eight-hour day, but we are significantly lower than the standard in over 90 percent of our operations.

The second biological principle that is important in understanding asbestos-related disease is multifactorial etiology. This is especially true in relation to lung cancer. Epidemiological studies have clearly demonstrated the synergistic effect of cigarette smoking and asbestos exposure. Selikoff has written:

> In a group of 370 asbestos insulation workers with long work experience, examined in 1963 and followed to 1967, there was a clear distribution of risks according to smoking habits. Fewer than one death was expected among the 87 men with no history of cigarette smoking. Not one was observed, despite the fact there was ample evidence of asbestosis among them. On the other hand, among the 283 with histories of cigarette smoking, approximately three deaths of lung cancer were expected (smoking-specific estimate); 24 were observed. In this group an asbestos worker who smoked had approximately 90 times more risk of lung cancer compared to individuals who neither smoked nor worked with asbestos.[19]

Hammond et al.[20] have noted other effects of cigarette smoking in asbestos workers. In a report at the New York Academy of Sciences Conference on "Health Hazards of Asbestos Exposure," Hammond stated:

> The asbestosis death rates of men who currently smoked 20+ cigarettes a day was 2.8 times as high as the asbestosis death rate of men who never smoked regularly. It is clear that cigarette smoking greatly increases the risk of an asbestos worker dying from asbestosis or

asbestosis combined with pulmonary fibrosis and emphysema resulting from cigarette smoking.

> None of the men who have never smoked regularly died of cancer of the esophagus, larynx, pharynx or buccal cavity. The expected number of deaths from these cancers was 3.6 for men who never smoked regularly. This suggests that in the absence of exposure to tobacco, exposure to asbestos dust may have little or no influence on death rates from such cancers.

The importance of cessation of smoking in reducing the incidence of lung cancer can be seen in the following statements by Selikoff and his associates:

> Effect of cessation of cigarette smoking among asbestos insulation workers. Those who stopped smoking, when observed 1967-1976, had approximately one-third the increase in lung cancer compared to their colleagues who continue to smoke. The decrease in risk takes time, however, as much as 10 years.[21]

> Briefly, at a point between 5 and 10 years after stopping smoking, death rates for lung cancer decreased to about half of those suffered by cigarette smoking asbestos workers who continue to smoke. It is clear that a significant number of deaths due to lung cancer can be prevented if asbestos workers who are currently cigarette smokers were to stop.[22]

and

> It would seem that control of cigarette smoking would have a much greater impact on the incidence of bronchogenic cancer in asbestos workers than further reduction of dust levels.[23]

While cigarette smoking is the determinant for lung cancer, smoking does not appear to be a factor in mesothelioma. Mesothelioma is a rare form of cancer, even among workers with the highest exposure to asbestos, and our knowledge about this disease is extremely limited and very recent. In fact, its very existence as a separate disease was denied as late as 1960 by certain world authorities in pathology.[24]

In view of the limited knowledge available on mesothelioma, it is critical that no analysis of asbestos-associated risks overlook or disregard the following problems:

1. Difficulties in diagnosis. The likelihood of incorrectly diagnosing mesothelioma is so great that review of diagnoses of mesothelioma by panels of experts is recognized as indispensable throughout the world. The European Economic Community and several nations have established mesothelioma panels to address this need. These mesothelioma panels have verified the problems in diagnosis and have reported that as many as 50 percent of diagnosed mesotheliomas by general pathologists are mistakenly identified as mesotheliomas.[25] Even among the experts on the U.S. Mesothelioma Panel, there is at best agreement on the diagnosis in only 80 percent of cases under review. Thus the number of mesotheliomas, and whether its incidence is increasing or decreasing, is still subject to considerable uncertainty.

2. Inaccurate dose-response data. Mesothelioma in workers exposed for short time periods has erroneously been assumed to occur in response to low-dose exposures when, in fact, the concentration in the studied work environment was exceedingly high.[26] Careful analysis of studies of workers exposed to asbestos will document a dose-response basis for mesothelioma occurrence.

3. Whether other causes exist. Mesothelioma was originally assumed to be caused entirely by exposure to

asbestos. However, virtually all studies on mesothelioma have verified the occurrence of this cancer in individuals with no history of asbestos exposure. Recently, a population with an increased prevalence of mesothelioma has been identified in the zeolite-bearing area of Turkey, and studies suggest that these naturally occurring fibrous zeolites are responsible for the mesotheliomas observed in that region.[27] The earlier report of Das et al., suggesting a connection between mesothelioma and sugar cane farming in India[28] has been paralleled in a study by Voors and his associates of excess respiratory system cancer in the wetlands of southern Louisiana.[29] In both studies, mesothelioma was identified in sugar cane farmers having no known exposure to asbestos. The recognition of potential environmental causes of mesothelioma other than asbestos exposure makes it imperative to determine whether additional causative factors exist.

The initial data relating mesothelioma to excess asbestos exposure, combined with the biological data relating to mesothelioma per se, understandably establish a need for continuing surveillance. However, the recent data also indicate a basis for anticipating that control measures will result in a reduction in mesothelioma occurrence analogous to that seen with asbestosis and lung cancer, especially since body burden studies[30] emphasize that mesothelioma operates in accordance with accepted biological principles, including dose response.

There are an array of ongoing studies devoted to estimates of the future occurrence of asbestos-related disease, but the problem with such projections or estimates is that they frequently fail to emphasize the role of smoking in disease occurrence and fail to distinguish between past conditions and the present situation in the workplace. In other words, the basic principles of dose response and multifactorial effect are ignored.

This is particularly true of the projections of future disease incidence contained in the document entitled "The Estimates of the Fraction of Cancer in the United States Related to Occupational Factors," which was prepared by the U.S. National Cancer Institute (NCI), the National Institute of Environmental Health Sciences (NIEHS) and the National Institute for Occupational Safety and Health (NIOSH). This document has been criticized by a major segment of the scientific community and the estimates repudiated and discredited. For example, Sir Richard Doll, formerly Regius Professor of Medicine at the University of Oxford and now Warden of Green College at Oxford, has written:

> I can assure you, however, that neither Dr. Schneiderman nor Dr. Upton can be in any doubt about my views about the HEW paper "Estimates of Cancer." They have been told, and frankly, that I regard it as scientific nonsense--a view which was widely endorsed at the recent meeting of the American Society of Preventive Oncology. If Dr. Schneiderman regards the comments as "suprisingly meager to date" it can only be because he was expecting a torrent of criticism.[31]

The medical journal Lancet, in an editorial on the NCI/NIEHS/ NIOSH report, stated:

> Yet its framework is insubstantial--remarkably so, in view of the fierce criticism of other people's work. The asbestos extrapolation is based predominantly on follow-up of American shipyard workers; there is no review of the full range of epidemiological studies that have been published on this subject. . . . Though cancer mortality is estimated for the very large workforce potentially exposed to asbestos since the 1940s, no data are presented on the degree of exposure in these workers, and hence on their risk of lung and other cancers; it seems very rash to suppose that these risks may be estimated from one specific study, by the use of a crude division of workers into heavily and less heavily exposed.[32]

The editorial concluded, "It is sad to see such a fragile report under such distinguished names."

The projections of asbestos disease by the government were also the subject of two detailed and pointed challenges by Johns-Manville, and copies of our response to the U.S Occupational Safety and Health Administration (OSHA) on the estimates, as well as the counter reply of Dr. Schneiderman, are attached as Appendix B.

We are convinced that a review of all the data presented will clearly demonstrate that asbestos exposure can be controlled so that working with asbestos need not result in any hazards to health.

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Le 13 janvier 1981

Monsieur J. Stephan DUPRÉ
Président
Royal Commission on Asbestos
ONTARIO (Canada)

Monsieur le Président,

Au nom de M. Charles-E. Beaulieu, sous-ministre associé (Mines) du ministère de l'Énergie et des Ressources du Québec, j'ai le plaisir de vous adresser ci-joint un document de travail intitulé "CONSIDERATIONS TOWARD THE ELABORATION OF A QUEBEC POSITION ON ASBESTOS REGULATIONS".

Ce document présente un certain nombre d'arguments tirés de la littérature récente qui serviront à élaborer une position gouvernementale québécoise. Même s'il n'est qu'un document de travail, il présente un éclairage différent qui pourra — nous l'espérons — être utile à la Commission dans l'élaboration de ses recommandations.

Nous vous soumettons également, pour votre information, les commentaires que nous avons fait parvenir au ministère du Travail de l'Ontario concernant les réglementations sur l'amiante.

À l'occasion d'une séance d'étude de votre Commission, nous pourrons également — si vous le désirez — faire une présentation verbale sur le sujet de la présence d'amiante dans les édifices publics, principalement les écoles.

Nous restons à la disposition de votre Commission pour toute question qu'elle désirerait nous adresser.

Veuillez agréer, Monsieur le Président, l'assurance de notre plus grande considération.

Georges Dahmen

Georges DAHMEN
Conseiller

GD/dr
Pièces jointes (2) huit exemplaires
c.c. M. Charles-E. Beaulieu

DOCUMENT DE TRAVAIL

SOUMIS À LA COMMISSION ROYALE DE L'ONTARIO
SUR L'AMIANTE.

MINISTÈRE DE L'ÉNERGIE
ET DES RESSOURCES

QUÉBEC, LE 15 JANVIER 1981

CONSIDERATIONS TOWARD THE ELABORATION OF
A QUEBEC POSITION ON ASBESTOS REGULATIONS

Introduction

Safety and security in the workplace has always been one of the main preoccupations of the Québec government. Recently, in July 1977, th mining act was amended to introduce a new standard on asbestos dust concentration of less than two fibers greater than five microns per cubic centimeter, standard now applied in most industrial countries.[1] In December 1979, the same standard was extended to all establishments (industrial , commercial, offices, etc.)[2] and at the same time a new law on health and security in the workplace was sanctionned that provided mechanisms to insure the application of the regulations.[3]

During the past four years, the Québec government has been also actively pursuing the development of the transformation in Québec of asbestos, more specifically chrysotile asbestos. Despite some difficulties and delays, it has now established its presence in those areas of the industry where potential expansion can be expected.

The Québec government has also, in collaboration with the industry, created a center for development and research on asbestos whose main objectives are the development of new safe products and the improvement of existing ones.

The measures taken by the industry to improve dust conditions in the workplace have to be mentioned.

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More than 100 million dollars have been spent on dust removal and control in the industry and achievements can be qualified as remarkable, being, as of January 1980, within current standards.

Current situation

Despite these efforts and achievements, a climate of stability does not prevail. On the contrary, a strong emotional negative publicity against asbestos continues to afflict the international scene and triggers regulatory processes with proposed contents not always based on scientific evidence.

The uncertainties created by new proposals of reduced standards, proposed ban of products containing asbestos and proposed ban of imports of asbestos itself, tend to favor the introduction of substitutes. These substitutes are not yet regulated and in most cases, there is no knowledge of their possible effects on health.

Substitution has even been recommended to be made mandatory in different European countries. In England, in 1979, the Advisory Committee of the Health and Safety Commission made a firm recommendation on substitution but added a note of caution in that substitution should take into account the potential health risk involved.[4] It took 50 years before asbestos health effects were finally evaluated and nearly 20 to bring these problems under control.

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Given the time and heavy investments involved in reorienting production, any recommendation of substitution has to be evaluated very carefully in the light of current scientific knowledge, because it could lead to unjustified and costly reorientation not only in terms of money but possibly in terms of public health.

For example, the United States Environmental Protection Agency (EPA) recognizes that a greater risk is involved in using any pipe system other than asbestos-cement pipes to convey stable non aggressive water to consumers. [5]

The order from the smallest risk to the greatest is :

asbestos-cement pipes
cement lined
polyvinyl cloride
vinyl coated
epoxy coated
resin base coated
coal tar coated.

Actually, the health risk involved with the use of any pipe systems would be very small but substitution of asbestos would increase whatever risk existed.

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Impact

As the second largest producer in the world after the Russians, the Québec government is deeply concerned by these uncertainties and proposed regulations.

The production of asbestos in Canada is about 30% of the world production. (Of which 88% comes from Québec). 95% of this production is exported, that is approximately 1,4 million metric tons per year valued at more than 600 million dollars.

The United States market constitutes nearly 40% of our total exports and we supply 99% of the United States total imports of asbestos. These 1977 figures show that the United States of America is by far our major market.

Thus the decisions that will be taken regarding regulations will have a decisive impact on the future development of the Québec asbestos industry. It will also affect many important economic activities such as construction and transportation and nearly all mining operations.

It is important to realize that the United States Mine Safety and Health Administration has estimated that 6 000 mining operations out of a total of 15 000 could theoretically have asbestos fibers in the ore or in the

.../5

gangue rock and that, to date, approximately 20% of the surveyed mining operations have fiber counts over the current standard of two fibers/cc.[6] Will export of such minerals become subjected to asbestos regulations?

The government of Québec is convinced that there is now sufficient scientific knowledge, based on the experience of the past, to take the position that current criteria and regulations of the type it has adopted are adequate to protect the physical integrity of the workers by limiting the risk involved to minimal levels for all related diseases associated with asbestos dust exposures.

A rational approach has to prevail and instead of spending time and effort to modify current dust exposure criteria, the government of Québec urges all governments to take measures to insure the application of the existing ones.

The estimation by the United States Mine Safety and Health Administration mentioned above, tends to confirm this position of the necessity of effective application instead of modification without serious reasons to do so.

* * *

OCCUPATIONAL EXPOSURE

Existing Regulations

Most existing regulations concerned with occupational exposure to asbestos dust require that atmospheric contamination within the workplace be limited to a time-weighted average of two or less than two fibers greater than five microns per cubic centimeter.

Asbestosis

It is well known that this occupational standard, first introduced in England in 1969 was intended to protect workers from asbestosis based on the acceptance of a minimal risk of developing this disease.

The standard was arrived at on the basis of a study of the workers in employment at a particular time at Rochdale, a textile factory using mainly chrysotile.[7]

It was estimated that exposure to an average of two fibers per cc would lead to the occurrence of an early but non specific sign of asbestosis : crepitations, in 1% of the workers at the end of their life, that is after 50 years of such exposure.

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A revision of the data to take into account the men who had left the industry at the time of the first study, shows that the occurrence of crepitations has been underestimated.[8]

The rate of occurrence of crepitations at a level of exposure of two fibers (>5μ/cc) during a lifetime (50 years) would be of 2% instead of one (double the initial intended rate). The second study also shows that an annual incidence of 0,5 percent of certified asbestosis would occur after an exposure within the current standard. It should be mentioned that the rate of observed certified asbestosis was nearly 1% in the first study compared to 0,5 percent in the second and that - as stated by Pr. Berry in Johannesburg in 1977 - there is a possibility of overestimation of certified asbestosis cases. (9 autopsies of certified cases have led to the elimination of three cases.) [9] [10]

One could argue that such a rate of incidence (0,5%) after 50 years of exposure is already minimal but in fact, the real rate may be much lower.

On the other hand, as mentioned in the November 1979 report of the Advisory Committee of the Health and Safety Commission of England (the Simpson report) :

> " However, if one is able to accept, as has been suggested on the basis of parallel measurements, that personal sampling with modern techniques of fiber counting such as are used to enforce the standard at present would have arrived at

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> measurements of dust at Rochdale in the 1950's and 1960's some two to five times those used in the calculations, the evidence in favour of asbestosis occurring at Rochdale after a lifetime's work at the present standard falls away. " (vol. 2; § 252)

This adjustment would lead to a rate of occurrence of certified asbestosis over a lifetime's work at the present standard of less than 1/4 of one percent.

This appears to be minimal and the acceptance of the reasons for an adjustment is the same as recognizing that due to improvement in measurement methods there has been a "de facto" tightening of the British Hygiene Standard. The criteria of two fibers is now equivalent to 0,4 to 1 fiber (>5µ/cc) if we had the same methods as were used in the 1960's.

It can be concluded that the current standard, due to improvement in sampling techniques and methods of counting is more stringent than in 1969 and implies a minimal risk.

In any case, the measured results of this minimal risk will take time to be observed due to past exposures of active workers and the long latency period.

In terms of current data, a report published February 1979 by "Le groupe d'étude sur les maladies respiratoires professionnelles (pneumoconioses)" created by the "Société canadienne de thoracologie" and the Canadian Federal Department of Health and Welfare,

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TORONTO OCCUPATIONAL HEALTH RESOURCE COMMITTEE

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January 16, 1981

Dr. J. Stefan Dupré
Chairman
Royal Commission on Matters of Health and Safety
Arising from the Use of Asbestos in Ontario
180 Dundas Street West
Toronto, Ontario

Dear Dr. Dupré:

The Toronto Occupational Health Resource Committee is a group of workers, educators, legal and health professionals who have joined together to promote the right of everyone to a safe workplace by gathering resource material on health and safety issues for workers, by engaging in educational activities, by encouraging public discussion on occupational health and safety issues, and by developing a network of individuals and groups to cooperate in this area.

We are pleased to enclose eight copies of our brief The Social Challenge of Asbestos for the Royal Commission. We look forward to presenting this brief to the Commission in person and answering your questions concerning it.

Our contact person for the brief and our presentation at the public hearings is Brian L. Gibson, M.D. He can be reached by telephone at 965-5110 (days) and 698-4068 (evenings and answering service).

Yours sincerely,

Michael Hutsulak
Steering Committee
Toronto Occupational Health Resource Committee

TORONTO OCCUPATIONAL HEALTH RESOURCE COMMITTEE
1-203 Beverly Street
Toronto, Ontario
M5T 1Y9

evaluated at 877 (696 in Québec) the number of new cases of asbestosis that had been compensated during the 12 year period from 1965 to 1976, that is 73 cases per year on average.

Given a latency period of 20 to 30 years, these workers were exposed to the high concentrations that did prevail before the 1970's.

Mortality from asbestosis was estimated at 30 cases in Canada for the 10 year period from 1965 to 1974.

McDonald's study, published early in 1980, reported 46 cases of deaths by pneumoconioses that is, approximately 1% of all deaths by all causes recorded up to 1975 in his cohort of 11 379 miners and millers of the asbestos mining region born between 1891 and 1920. (4 463 deaths have occurred up to that date). [11]

* * *

Cancer

In October 1975, the United States Department of Labor published in the Federal Register a proposal of amendment that would bring the not yet enforced criteria of two fibers (>5µ/cc) down to 0,5 fibers (>5 µ/cc).

The purpose was to change from prevention of asbestosis to what was already considered the more important problem : the prevention of cancer.

This objective raises the question of the existence of a level of exposure with no excess risk of cancer.

Current medical knowledge cannot answer this question and the prevalent hypothesis is that there is no safe level of exposure for a carcinogenic agent, except zero exposure.

The concept of zero risk has been strongly rejected by the United States Supreme Court in its ruling on benzene stating that:

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" (a) The Court of Appeals was correct in refusing to enforce the 1ppm exposure limit on the ground that it was not supported by appropriate findings. OSHA's rationale for lowering the permissible exposure limit from 10 ppm to 1ppm was based, not on any finding that leukemia has ever been caused by exposure to 10ppm of benzene and that it will not be caused by exposure to 1ppm, but rather on a series of assumptions indicating that some leukemia might result from exposure to 10ppm and that the number of cases might be reduced by lowering the exposure level to 1ppm.
(Pp. 20-28)

(b) By empowering the Secretary to promulgate standards that are "reasonably necessary or appropriate to provide safe or healthful employment and places of employment" as required by § 3 (8), the Act implies that, before promulgating any standard, the Secretary must make a finding that the workplaces in question are not safe. But "safe" is not be equivalent of "risk-free." A workplace can hardly be considered "unsafe" unless it threatens the workers with a significant risk of harm. Therefore, before the Secretary can promulgate <u>any</u> permanent health or safety standard, he must make a threshold finding that the place of employment is unsafe in the sense that significant risks are present and can be eliminated or lessened by a change in practices.

(c) The Act's legislative history also supports the conclusion that Congress was concerned, not with absolute safety, but with the elimination of significant harm. Pp. 35-40.

(d) Where the Secretary relied on a special policy for carcinogens that imposed the burden on industry of proving the existence of a safe level of exposure thereby avoiding his threshold responsibility of establishing the need for more stringent standards, he exceeded his power. P. 49 "

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Thus a more rational view is to look for a level at which the excess risk would be barely detectable or would be such as to extend beyond a normal lifetime.

It is one of the main conclusions of nearly all studies, specifically of the Paterson Study (Seidman, Selikoff and Hammond)[1,2] that in general, the lower the dosage (as measured by the length of time worked), the longer it takes for adverse mortality experience to become evident. The occurrence of that adverse mortality would also be smaller.

In fact, if it is not possible to completely avoid exposure to carcinogenic agents, reducing the exposure can both delay the occurrence of adverse effects and lower the frequency of their occurrence.

In October 1976, the Québec "Comité d'étude sur la salubrité dans l'industrie de l'amiante" had to take the concrete decision of recommending an occupational dust exposure standard for asbestos. It concluded in the following way :

> " We believe that a diminution of total respirable dust and of content of asbestos in the total respirable dust at a level consistently below or at most equal to a fiber count mearure of TWO fibers greater than five microns per cubic centimeter could reasonably be considered as a tolerable level, IF at the same time, workers would abandon cigarette smoking completely and respect appropriate hygiene standards. " (Beaudry report, P. 128).
>
> NOTE : This conclusion concerns chrysotile asbestos only; a ban was recommended for amosite and crocidolite).

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This conclusion is not surprising. Since 1967, Dr. Selikoff of the Mount Sinai School of Medicine has established that for the most important of all neoplasms for which some evidence of carcinogenic potential existed in relation with asbestos — that is lung cancer — the risk did not depend on asbestos alone. Rather, if there was not concurrence — cigarette smoking and asbestos — "THE TUMOR WAS UNCOMMON".

To confirm these unexpected results, a second much larger study was undertaken in order to investigate whether asbestos exposure without cigarette smoking TRULY did not significantly increase the risk of lung cancer.

This second famous Selikoff study analysed the entire membership of the insulation workers'union in the United States and Canada.

As stated in the Federal Register of January 22nd, Pp. 5020 & sq.), the conclusion was :

> " analysis of lung cancer deaths among the 17 800 men to December 31, 1972, showed that increased risk of this neoplasm was limited to asbestos workers who also had an history of cigarette smoking... these new findings again demonstrate that asbestos workers who do not smoke or smoke only pipes and/or cigars, have about the same risk as men not occupationally exposed to asbestos... "

To use Dr. Selikoff's own testimony :

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> " we found that among 2 066 non cigarette smokers there should have been 1,82 deaths, the way the statisticians put it, 1,82 deaths of lung cancer. There were eight. In other words somewhere around four to five times as many. BUT THIS IS CERTAINLY NOT A MAJOR PUBLIC HEALTH PROBLEM. You had four to five times a small number and four to five times nothing is still not very much.
>
> On the other hand, you had again five times the already high risk of cigarette smoking. So that instead of 67 deaths anticipated, 325 actually occurred, confirming not simply the carcinogenicity of asbestos in terms of lung cancer among those exposed, but also the extraordinary multiple factor etiology ".

Dr. William Nicholson's comments made at the same hearings, as reproduced in the Federal Register, were :

> " although the data are still insufficient to accurately determine the risk of dying of lung cancer in non smoking asbestos insulators, they do suffice to establish that the risk is less than for cigarette smoking males in general population who do not work with asbestos ".

It is agreed that those workers were exposed to heavy concentrations of asbestos dust, not only chrysotile but a mixture of different fibers.

It is therefore not surprising if, even when disregarding smoking habits, it becomes difficult if not impossible, to detect any significant relationship between lung cancer and chrysotile asbestos at "low" levels of exposure.

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On this point, let us refer to some of the results of the most exhaustive study undertaken among miners and millers of Québec chrysotile asbestos mining communities, by Pr. Corbett McDonald, published early this year in the British Journal of Industrial Medicine.

In this report on a birth cohort of 11 379 workers born between 1891-1920 who had worked for at least a month in the mines and mills of Asbestos and Thetford-Mines in Québec (two different mining cities producing about 25% of the world's asbestos), three methods of analysis gave results consistent with one another and with previous analyses.

The main results were that among men, the overall excess mortality for the period between 1926 and 1975 was 2% in Asbestos and 10% in Thetford-Mines, much the dustier mining district in the past.

Among women, mostly employed in Asbestos, the standardized mortality ratio was 0,90 indicating a lower mortality rate than expected.

But another very important conclusion was that :

> " If the only subjects studied had been the 1904 men with at least 20 years' employment in the lower dust concentrations averaging 6,6 million particles per cubic foot (or about 20 fibers per cubic centimeter), excess mortality would not have been considered statistically significant, except for pneumoconosis. "

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If such a large epidemiological survey does not permit us to detect an increased risk of cancer, at what is considered today an unacceptable level of dust concentration (20 fibers/cc), one can be confident that miners and millers and all asbestos workers and users are protected as long as the current standard is enforced, not only for miners and millers, but also for the entire industry.

This confidence will certainly be increased if at the same time cigarette smoking is gradually eliminated among asbestos workers. One could speculate from McDonald's study that at more recent concentrations of about one million particles per cubic feet (1-5 fibers) the risk would be equivalent to the smoking of less than one cigarette a day.

In its investigation of the relation between dust exposure, smoking habits and deaths occurrence from lung cancer, a clear and substantial effect of cigarette smoking was showed for each category of smoker. The risk of lung cancer was lowest among those with low exposure accumulated to age 45 and highest among those with exposure of at least 300 mpcf accumulated by the same age. (McDonald's study, B.J.I.M., 1980, §37, p. 19, tables 9 and 11)

The data shows that at low levels of cumulative exposure (less than 300 mpcf), the standardized mortality ratio is well below one for non smokers confirming the low incidence of lung cancer in non smoking workers.

* * *

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Other types of cancers have been associated with asbestos dust exposure.

In the McDonald's study, it is mentioned that:

> " There was unquestionably a substantial excess in mortality from cancer of the upper gastro-intestinal tract in men most heavily exposed. This excess was confined to Thetford-Mines were most of the long and heavy exposures occurred. The exposure-response curves were far from regular however, and it appears that some other important factors were also operating — perhaps selective, perhaps environmental. The SMR for cancer of the lower gastro-intestinal tract for the complete cohort was 0,78; nevertheless there was some evidence of an exposure-trend response. "

On laryngeal cancer, the findings are clear cut :

> " There has been no excess in the industry and there is no quantitative association with exposure; on the other hand, we find a direct relation with cigarette smoking ".

On mesothelioma, the findings confirm the very low incidence of this cancer in chrysotile miners and millers.

Dr. McDonald in his presentation in Johannesburg (1977) stated that "in the Québec chrysotile industry the risk of mesothelioma in absolute terms is small and at least two of the four cases at Asbestos were probably caused by crocidolite".[13]

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A case control study of mesothelioma in Québec from 1969 to 1972 by Dr. Gilles Thériault and Mrs. Liliane Grand-Bois showed that the mortality rate for mesothelioma is between 2,3 and 2,8 per million per year.[14]

In Canada the incidence rate of mesothelioma between 1966 and 1970 was estimated at 1,4 cases/ million/year.

This study showed an occupational exposure to asbestos for 30% of the men with mesothelioma and suggested that urbanization may be related to the incidence.

Thus, mesothelioma cannot be considered as a public health problem. According to Ruttner, autopsy studies carried out by Zürich pathologists revealed that not more than 3 to 5 percent of the mesotheliomas were related to occupational or other kinds of exposure to asbestos.[15] The number of environmental cases observed in some other countries allow us to suspect other factors that might have an influence.

* * *

To conclude on cancer, one can mention the Simpson report which demonstrated (§130, table 21) that at levels of chrysotile dust concentrations varying between 0,4 fiber (>5µ/cc) and five fibers (>5µ/cc), an excess risk of lung cancer of 1% could be expected.

* * *

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ENVIRONMENTAL EXPOSURE

The asbestos dust level in the general environment is so much lower than in occupational settings that there appears to be little or no risk to the public, in the sense that evidence of a risk may extend after a normal lifetime.

In Québec a general mortality study on cancers in the asbestos mining towns compared to 67 other cities and towns gave no evidence or increased risk for the general population as approximated by the female population.[16]

The Simpson report made some calculations about the excess number of lung cancer deaths which would occur if a million persons were exposed continiously 8 hours a day — 5 days a week — for 50 years to the highest recorded concentration of asbestos in the ambient air, out of doors, (10 nanograms/m^3) or to the median of highest levels recorded in buildings (not under active construction or repairs). (§132, table 22)

It concluded that unless the number of contaminated buildings is very much more common as seems likely, no appreciable mortality from lung cancer can be associated with any degree of contamination from chrysotile likely to be encountered in the United Kingdom.

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As shown in a recent study by Schirripa, the risk created by the removal of the asbestos often outweighs the risk of "doing nothing", besides demonstrating that in most cases the "time to tumor" exceeds the life span of all persons exposed.[17]

There is also no evidence currently available to suggest that there is any risk from the comsumption of asbestos contaminated food and drink.

A report of a Committee from the European Communities dated April 1980 concluded :

> " There is no certain scientific proof that persons not occupationally exposed have a risk due to fiber contained in air, water, food and other potentially contaminated sources. "

The same report stated further that :

> " ... it would not be reasonable to require that food and water do not contain any residue of asbestos. "

It can be concluded that the problem is not environmental.

* * *

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CONSUMER PRODUCTS

Although no evidence of even more than traces of fibers could be found in certain consumer products, adverse publicity compaigns have resulted in the recalling of these products.

Clearly, most of the products will be safe to use, but warning labels could be put on all manufactured products containing asbestos, offered for sale to the public.

* * *

1981-01-15

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   b) Lettre de M. Mac A. Weaver, Acting Chief, Water Supply Branch - EPA Region VI Dallas, Texas — à M. Robert P. Van Dyke, General Manager, City Water Board, San Antonio, le 6 octobre 1980.

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* *

Gouvernement du Québec
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845, boul. Saint-Cyrille ouest
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Tél. numéro : (418) 643-3034

Le 15 octobre 1980

Designated Substances Project
Standards and Programs Branch
Ministry of Labour
400 University Avenue
TORONTO (Ontario)
M7A 1T7

À qui de droit :

À la demande de M. Charles-E. Beaulieu, sous-ministre associé (Mines) au ministère de l'Énergie et des Ressources du Québec, vous trouverez ci-joints quelques commentaires sur le projet de réglementation présenté en vertu de la Loi ontarienne sur la Santé et la Sécurité au Travail (1978).

Ces commentaires ne portent que sur l'amiante mais nous vous faisons également parvenir l'arrêté en conseil du 19 décembre dernier intitulé : "Règlement relatif à la qualité du milieu de travail" qui règlemente quelque 650 substances chimiques, en plus de déterminer les règles relatives à la ventilation, au chauffage, aux contraintes thermiques, au bruit, à l'éclairage et aux services sanitaires.

Nous espérons que ces quelques notes vous seront utiles et nous restons à votre disposition pour toute information complémentaire.

Veuillez agréer nos salutations distinguées.

GEORGES DAHMEN
CONSEILLER

Georges DAHMEN, conseiller
Bureau du Sous-ministre associé (Mines)

GD/dr

1 p.j.

COMMENTS ON PROPOSED REGULATIONS CONCERNING ASBESTOS

October 1980

Presented by the Québec department
of Energy and Resources.

Proposed Regulation
under
The Occupational Health and Safety Act, 1978

ASBESTOS - DESIGNATED SUBSTANCE

1. In this Regulation,

(a) "asbestos" means a fibrous asbestos mineral;

(b) "fibre" means a fibre of asbestos longer than five micrometres with a length to diameter ratio not less than 3:1 as counted in a phase contrast optical microscope at 400-500 magnification;

(c) "fibres/cc means fibres per cubic centimetre.

COMMENTS

(a) By limiting the application of the proposed regulation to asbestos and asbestos fibers, the possibility that other natural or artificial mineral fibers having the same dimensions could essentially have the same effect as asbestos fibers is not considered.

It has been shown that fibers of a wide range of chemical structures (including glass and aluminum oxyde) produce mesothelioma after injection into the pleural or peritoneal cavities in animals if the physical caracteristics fall within a certain range : degree of carcinogenicity seems to be related to the proportion of fibers with diameters between 0,5 and 2,5µ and lengths between 10-80µ. Fibers greater than 200µ have been seldom found into the lungs and fibers with diameter greater than 3µ may never reach the alveola and are thus most probably expelled by defense mechanisms.

(b) The Government of Québec considers that neglecting those other fibres is creating a discrimination against asbestos and also may lead to substitution of fibres potentially as dangerous but for which sufficient knowledge has not yet been accumulated.

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2. Asbestos is prescribed as a designated substance.

NO COMMENT.

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3. This Regulation applies to every employer at a work place where asbestos is present, processed, mined, used, handled or stored and at which a worker is likely to inhale or ingest asbestos;

(a) Asbestos fibers are ubiquitous in the ambient air not only because of human uses but also naturally.

For this reason, the combined conditions of "presence" and "likelihood of inhalation" may extend the application of the proposed regulation well beyond "intended" coverage.

The presence of asbestos fibers of the amphibole and chrysotile group in drinking water as shown in the "national survey for asbestos fibers in canadian drinking water supplies" of the federal Health and Welfare department, combined with the "likelihood of ingestion" leads to the same situation.

In fact, any employer of Ontario would have to comply to the proposed regulation.

(b) Even if the proposed regulation was restricted to well defined industries or trades, the inclusion of "likelihood of ingestion" may have the effect of asking of those industries and trades to control conditions well beyond their normal obligations or capacities.

Municipal responsibility for drinking water treatment for example could be shifted.

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In any case, the inclusion of "likelihood of ingestion" creates the obligation for the employer to measure, assess and control exposure by ingestion without defining (as for inhalation) a method to measure the exposure nor the way to take it into account.

(c) The question of inclusion of other mining operations could be raised.

It has been done by the U.S. Mine Safety and Health Administration,
- the U.S. authority to set safe standards for any hazardous substances found in mines.

Using information obtained from the U.S. geological Survey data and the results of the 1974 EPA report (EPA 65/2-74-087) :
"Identification and Assessment of Asbestos emissions from incidental sources of asbestos", MSHA was able to identify over 6 000 mining operations (out of an approximate nationwide total of 15 000) which could theoretically have asbestos fibres in the ore or gangue rock. To date the screening survey is incomplete due to the delay in fibre analysis. The data compiled so far indicates that approximately 20% of the surveyed mines (i.e. 1 200 mines) have fibre counts over 2 fibres/cc.

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(d) The government of Québec considers that at present, information about response to dose in the case of ingestion is on the whole irregular and weak compared for example with lung cancer.

Thus, it regulates only dust conditions and likelihood of inhalation of fibers wherever they are found, including other mining operations.

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4. (1) Subject to section 11, every employer shall, otherwise than by requiring a worker to wear and use respiratory equipment, control the exposure of a worker to airborne asbestos so that the time-weighted average exposure of the worker does not exceed,

(a) in the case of amosite, 0.5 fibres/cc of air,

(b) in the case of crocidolite, 0.2 fibres/cc of air, and

(c) in the case of chrysotile or any other asbestos except amosite and crocidolite, 1.0 fibres/cc of air.

(a) As mentioned earlier, ingestion is not subjected to any criteria in the proposed regulations since this article covers only airborne asbestos.

(b) The principle of different criteria for the control of chrysotile and amphiboles fibers is still controversial.

- The Simpson's report in England and the European Communities' directives have adopted the position that there are marked differences in the health effects of amphiboles and chrysotile and accordingly, have proposed more stringent measures of controls for amphiboles like crocidolite and amosite.
- The U.S. administration has adopted the position that there is no need to distinguish between carcinogens and accordingly have proposed to achieve the lowest level of exposure feasible for all asbestos fibers and in fact, called for a future ban on the utilization of asbestos. (Ban was rejected by the Simpson's report).
- In Canada, a federal provincial working group on asbestos did agree on the possibility of differences in health effects but did not suggest differences in regulations.

(c) Even if the gouvernment of Québec tends to agree with the principle of different criteria for the control of chrysotile and amphibole fibres, this distinction was not introduced in the regulation mainly because

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- the existing criteria of 2 fibers > 5 μ /cc for dust control in (chrysotile) mines and mills was (and still is) considered satisfactory,

- a firm judgment on differences in health effects was (and still is in our view) not possible with the available evidence,

- and finally, the priority was (and still is) to have an extended uniform criteria for all establishments presenting dust conditions

(d) concerning the proposed level of time-weighted average for chrysotile as mentioned in point (c), the government of Québec considers that the 2 fibers > 5μ/cc criteria is still satisfactory.

As pointed in the Simpson's report (chap. I, p. 94) "the interpretation of this important part of the evidence (Rochdale studies, which are the basis for the standard) therefore depends largely on the view taken of the dust measurements used in these studies and upon the diagnosis of certified asbestosis at Rochdale. There is also uncertainty about how far it is reasonable to derive from data about asbestos textile workers conclusions extending to all situations where occupational exposure to asbestos occurs."

On the interpretation of the dust measurements, if it is accepted that doses have been underestimated by a factor of 3 or more, then the current standard would be adequate.

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(2) Subject to section 11, every employer shall, otherwise than by requiring a worker to wear and use respiratory equipment, control the exposure of a worker to airborne asbestos so that such exposure does not exceed in any period of time,

(a) in the case of amosite, 2.0 fibres/cc of air,

(b) in the case of crocidolite, 2.0 fibres/cc of air, and

(c) in the case of chrysotile or any other asbestos except amosite and crocidolite, 5.0 fibres/cc of air,

(3) The time-weighted average exposure shall be calculated in accordance with the Schedule.

It is also worth mentioning in favor of the existing criteria, one very strong conclusion of Pr. McDonald in his recently published study on dust exposure and mortality in chrysotile mining (B.J.I.M. 1980;37; 11-24) :

> "If the only subjects studied had been the 1904 men with at least 20 years employment in the lower dust concentrations, averaging 6,6 million particles per cubic foot (or about 20 fibres/cc) excess mortality would not have been considered statistically significant, except for pneumoconiosis"

For chrysotile only, same level as is Québec.

NO COMMENT.

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5. Upon receiving a report from the examining physician under subsection 1 of section 13 that the health of a worker has been impaired by exposure to asbestos, the employer may, with the approval of the Chief Physician, Occupational Health Medical Service of the Ministry, remove the worker from exposure to asbestos.

The nature of "an impairment" is not described and thus could lead to many interpretations.

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6. (1) Every employer shall cause an assessment to be made of the exposure or likelihood of exposure of a worker to the inhalation or ingestion of asbestos.

(2) In causing the assessment to be made, the employer shall consider and take into account such matters as,

(a) the methods and procedures used or to be used in the processing, mining, use, handling or storage of asbestos;

(b) the extent and potential extent of the exposure of a worker to the inhalation or ingestion of asbestos; and

(c) the measures and procedures necessary to control such exposure.

(3) In causing the assessment to be made, the employer shall consult thereon with the joint health and safety committee required to be established under clause b of subsection 2 of section 8 of the Act and the committee may make recommendations with respect to the assessment.

The requirement of assessment involved in the case of ingestion could be very difficult at least at the individual level.

As for measures and procedures necessary to control such exposure, see our comment "(b)" on article 3 concerning extent of responsibility and capacity of the industry.

.../11

7. (1) Where the assessment discloses that a worker is likely to inhale or ingest asbestos, and that the health of the worker may be affected thereby, an employer shall develop, establish, put into effect and maintain measures and procedures to control the exposure of the worker to asbestos.

(2) The measures and procedures mentioned in subsection 1 shall be incorporated into an asbestos control program.

(3) The asbestos control program shall include provisions for,

(a) engineering controls and work practices to control the exposure of a worker to asbestos;

(b) methods and procedures to monitor the airborne concentrations of asbestos in the work place and the exposure of the worker thereto;

(c) personal exposure records of a worker to asbestos to be maintained by the employer;

(d) medical examinations and tests of a worker including pre-placement and periodic medical examinations, X-rays and tests, but only with the consent of the worker; and

(e) records of medical examinations, X-rays and tests of a worker to be maintained by a physician who has examined the worker or caused the tests to be performed.

(4) In developing the asbestos control program, the employer shall consult with the joint health and safety committee and the committee may make recommendations with respect to the program.

Due to the general formulation and the fact that theoretically in the view of certain scientists, any exposure even the slightest, may affect the health of a worker, the obligations involved in order to comply may not be reasonable.

See comment on art. 3.

.../12

8. Where a change is made in a process involving asbestos, or in the methods and procedures in the mining, use, handling or storage of asbestos and the change might result in a significant difference in the exposure of a worker to the inhalation or ingestion of asbestos, the employer shall cause a further assessment to be made forthwith and develop, establish, put into effect and maintain an asbestos control program to control the exposure of the worker to asbestos as a result of the change and the provisions of sections 6 and 7 apply to the assessment and the asbestos control program required by this section.

Assessment and further assessment may involve many medical examinations. The social Affairs department of Québec and the radiologist association have already raised some objections to the high level of X-rays per capita in Québec and in Canada. It may become necessary to caution about repeated X-rays exposures.

ARTICLES 9 TO 20 :

NO COMMENT.

THE SOCIAL CHALLENGE OF ASBESTOS

Brief for the

Royal Commission on Matters of Health and Safety
Arising from the Use of Asbestos in Ontario

TORONTO OCCUPATIONAL HEALTH RESOURCE COMMITTEE

January 16, 1981

Toronto Occupational Health Resource Committee (TOHRC)

We are a group of workers, educators, legal and health professionals who have joined together to promote the right of everyone to a safe workplace. We have functioned under this name for a year and a half, but the group has been active for over five years. We will shortly be opening a part-time resource centre for workers in Toronto. The aims of our group, as stated in our constitution, are to promote the right to a safe workplace by:

1) helping to educate individuals and groups on health and safety matters, both inside and outside the labour movement, including unorganized labour;
2) acting as a resource and support committee to workers, encouraging the development of skills and knowledge in health and safety matters;
3) encouraging and supporting political action on health and safety and workers' compensation issues;
4) encouraging the development of a network of individuals and groups relating to health and safety issues;
5) initiating and promoting public discussion on occupational health and safety issues.

****

Eighty-one years have passed since the first worker is known to have died, gasping for breath, because of exposure to asbestos in London, England, 1899. The use of asbestos by society has dramatically increased since then. Social concern for this health hazard has also been much more in evidence in the last decade, but this concern has yet to have much impact on the suffering and death that has been caused by society's use of this mineral. We are also becoming aware that many of the other chemicals that have become part of our technological environment have health consequences comparable to those of asbestos.

This brief will address the challenge that asbestos presents to society. The hazard of this substance is well-documented, even though significant scientific questions remain. The challenge asbestos presents has already been avoided much too long, often with scientific uncertainties as an excuse. The brief will comment only quickly on the scientific issues; we know that they will be well documented for the Royal Commission by other sources. The health consequences of asbestos are abundantly clear despite these uncertainties. This brief will outline the crucial changes that must occur in the social and economic stategies that we use to control the hazards of the technological environment. Society can no longer accept with easy conscience the suffering and death that substances like asbestos have caused not only to workers, but outside the workplace as well. The Royal Commission will fail to fulfill its first term of reference "to investigate all matters relating to health and

safety arising from the use of asbestos" unless it makes the social strategies required to eliminate this hazard its highest priority.

The Hazard of Asbestos

Canada produces one third of the world's asbestos. 1.6 million metric tons of chrysotile valued at $340 million were produced in 1977. Over 90 percent of this production was exported. Of the asbestos that remains in Canada for use by our manufacturing industries, one-third goes into asbestos cement, one-fourth into floor coverings, and one-fifth into brake linings and other friction products (1). Much of this manufacturing occurs in Ontario.

Asbestos, especially a particularly friable form, amosite, was until a few years ago used in spray insulation in public buildings in Ontario. This has raised concern about the low level present in the air in these buildings as the material degrades. Asbestos cement is used in the manufacture of waterpipe. This pipe is used to carry the municipal water supply for many cities in Canada. Indeed asbestos fibres can easily be detected within drinking water samples (2). Thus the concern for health consequences from exposure to asbestos covers not only workers where this material is presently used in the workplace, but also the past exposure of workers and and the environmental exposure of the general public.

Asbestosis was the first of the diseases related to asbestos to be recognized. This chronic pulmonary fibrosis

leads to a slow death, generally by cardiac failure. Although it was more common with the heavier exposures prevalent several decades ago, more than twenty new cases a year have been accepted for compensation in Ontario as an average over the last decade. The standards that have been set for exposure to asbestos in the United Kingdom and used as a guideline in Ontario, still accept a one percent incidence of this disease (3).

It is clearly recognized that asbestos causes cancer. This is acknowledged for bronchogenic carcinoma and also for the rarer mesothelioma. There have been 423 cases of mesothelioma documented in Canada between 1960 - 1975 (4). Over one-half of these cases can specifically be related to asbestos; no other risk factors are known. There is wide acceptance that an increase in gastro-intestinal cancers (over and above peritoneal mesotheliomas) is associated with asbestos exposure. It is not known whether ingested asbestos fibres as well as inhaled asbestos fibres are responsible. Laryngeal carcinoma has also been attributed to to asbestos exposure, but this is more disputed. All of these forms of cancer are accepted in Ontario for compensation if certain exposure criteria are met.

It is not known how asbestos causes cancer. The most widely accepted theory relates carcinogenesis to the physical action of the asbestos fibre or fibril; fibre size seems to be quite important for the effect. Especially for mesothelioma the most potent effect may come from fibrils too small to be seen in the optical microscope (5). Chemical factors, however, may also be involved (6).

This uncertainty over the mechanism of carcinogenesis raises three problems:

1) how to define asbestos. Other fibres than the usual asbestos minerals have been found to cause tumours (5). The hazard for the traditional asbestos minerals may be primarily caused by their breakdown to fibres of appropriate size in industrial processes.
2) the validity of dose-response information. If much of the carcinogenic effect is related to the fraction of inhaled asbestos that cannot be seen in the optical microscope, almost all of past dose information would have to be considered a marker for the more hazardous portion of the dust cloud. Large fibre concentrations may be a good marker for small fibre concentrations for a particular industry or process. The comparison may not be good, however, between industries or processes; this may explain much of the variation in cancer risk found between the various forms of asbestos exposure.
3) the significance of the various fibre types, particularly chrysotile compared to the amphibole forms of asbestos. The seemingly lower hazard of chrysotile may be related to a lesser tendency to form the smallest fibres.

Economic Strategy to Control the Hazard of Asbestos

Asbestos is a substance with wide use in our present industrial economy. Serious health effects have occurred from its use. As has already been presented to the Royal Commission (7), it is generally accepted that there is no threshold, at least

for the carcinogenic effect. Predictions for the consequences of past exposure to asbestos in the United States have considered that as much as 17 percent of all cancers in that country in the next 30 years may be attributable to asbestos (8). This represents 1.6 million deaths. This prediction of the National Cancer Institute and National Institute for Environmental Health Sciences may be high. It does give some idea of the magnitude of the problem that would continue to exist with widespread but more limited use of asbestos. The long latency period for asbestos-related diseases and the limitations in the present scientific information do not allow precise definitions of the consequences society will face in the next few decades from past and continued use of asbestos.

We believe that there is only one acceptable goal for society faced with this situation: economic independence from asbestos. This is a more profound statement of social strategy than to call for a simple ban on asbestos. A ban has to be practical and it has to be accepted. It is not a naive belief that the environment can be sterilized of asbestos. Both because of its widespread natural occurrence in many rocks and the burden of asbestos man has already placed in the environment, society must live with a background exposure to asbestos.

The argument is this. A number of substances have become intrically woven into the fabric of our technological environment and the economy built upon it. Some of these substances, asbestos as a major example, have health consequences of a serious and

significant nature. We cannot assume in a naive religious fashion that the hazards of our technology are incapable of bringing devastation upon society. We are confronted with the possibility of nuclear war. The limitations of present energy sources is very real today in its economic impact. The hazards of the chemicals we use is just as real a challenge. This is present in the collective or individual impact of those that are carcinogens, such as asbestos. A similar possiblity of utter devastation from a small component of our technology was raised in the recent concern over the impact that halogenated hydrocarbon spray can propellants might have on the ionosphere. To survive we must identify as a society those components of our technology with such potentially devastating consequences. We must develop the means to prevent new hazards from being introduced into our economy as well.

Thus a restructuring of our technological economy needs to take place. It must develop the flexibility to become independent of any single substance or individual technology. There will definitely be an initial cost to establishing an economy that truly has the freedom of many alternatives. There will be, of course, long term dividends for this effort; human survival almost certainly depends upon it. This restructuring of the economy almost certainly will also require a much greater conservation of resources in order to be acheived at a practical cost.

A society with built in technological alternatives can eliminate those with the most significant hazard. It will

refrain from developing new alternatives that have not been tested for a basic measure of safety. We believe that the track record of harm associated with the use of asbestos demands that the technologies based on its use be dropped. New and safer technologies are needed to take their place.

Smoking, however, it is argued, represents a much greater risk to human health than asbestos, or perhaps all chemical carcinogens combined. Much if not most of the hazard ofasbestos is caused by a synergistic effect of concomitant smoking. The hazard of smoking is not in dispute. But it is a different social problem. Society is not economically dependent on tobacco. Whatever sociological, psychological or physiological factors need to be addressed, the economic adjustment would be relatively easy if all smokers quit the habit. We are economically dependent on asbestos at the present time. Thus the challenge has to be met at the level of technological change in our economy. The moral issues from the use of asbestos arise from the choice by society, at least until the present, to perpetuate that economic dependence on asbestos. Nor is the hazard of asbestos primarily linked to smoking. This stands out quite clearly in the survey of the hazards of chrysotile mining in Quebec (one of the less hazardous asbestos occupations). The risk from asbestos for non-smokers is real (9).

Practical Requirements for Economic Independence from Asbestos

An integrated system of changes needs to take place if economic independence from asbestos is to be acheived:

1) the period of transition needs to be regulated. Reasonable control of asbestos exposure must be attained until its use is discontinued.

2) a ban on the use of asbestos will have to be implemented. This does not necessarily have to be at the same time for all uses. Such a ban is already within the legal power of the Ontario government under the Occupational Health and Safety Act, 1978. Precise legal definitions for the asbestos use that is being banned will be required.

3) a significant research effort is needed. This should not be directed at more precisely defining the extent of hazard associated with asbestos, but at clearly establishing the safety of the substitutes that are brought in as much as possible. A better understanding of the mechanism of carcinogenesis associated with asbestos fibres is crucial for this, since many asbestos substitutes are fibrous materials. It should be noted that considerable research into asbestos substitutes has already taken place (10). Practical substitutes already exist for a number of asbestos uses.

4) public investment in the alternate technologies to replace those based on asbestos almost certainly will be needed to cover the transition period during which they are more costly than the old technology. This can be acheived by the creation of a crown corporation.

5) asbestos will have to be removed from the present sites that create significant environment exposure. This includes friable insulation in public buildings and uncontained disposal.

Serious and immediate attention needs to be given to evaluate the hazard of ingested asbestos, so that a priority can be established for the replacement of asbestos cement waterpipe that is already in use. There is at present a rush to remove asbestos from some public buildings that does not seem to be occurring with due care for the exposures created in the removal of the asbestos or for the disposal of the asbestos that is being removed. Standards of care for this operation are urgently needed.

6) the economic dislocation of workers affected by the discontinuance of asbestos technologies must be remedied. The efforts required for asbestos removal, research into asbestos substitutes, and the development of the alternate technologies can with careful planning go a long way toward providing the jobs to replace those that will be lost.

Fallacy of Cost- or Risk-Benefit Analysis

Cost-benefit analysis tries to weigh the costs, in this case of the morbidity and mortality from asbestos as health dollars, against the economic benefits to society from the use of asbestos. The benefit can also be determined as the avoided cost of controlling or preventing asbestos exposure. It is impossible, however, to put a price tag on a human life. Some estimate can be made for the cost of controlling exposures. It is much more difficult, however, to evaluate transition to an alternate technology as a cost since the research involved and the transition efforts almost always generate numberous benefits that were not foreseen at the start.

Risk-benefit analysis tries to establish a precise value for the risk from a certain exposure. The cost of reducing the exposure is also determined. The risk at the reduced level of exposure also needs to be known. Then a dollar figure can be assigned to reducing the risk by a certain amount: it would cost so much to save a life. The resultant cost figures seem extreme in many cases. Such analyses are subject to the same criticisms as cost-benefit analyses. Life is assigned a value in monetary terms. The economic benefits of change are not considered. In this case also an assumption is made that precise dose-response information is available. It usually is not.

Society cannot eliminate all the hazards to which it is exposed. Some priorities have to be established. Practical ways of reducing the hazard or eliminating it have to be available. In the real world change takes place when the priority for that change has become such that the immediate cost is affordable. If the change is truly beneficial the process becomes self-sustaining once the threshold is crossed. We believe that the priority for the change away from asbestos-related technologies has come.

Development of Social Responsibility

Willingness by society to face the challenge of asbestos has been a long time coming. Life insurance companies ~~recognized~~ the risk of insuring asbestos workers in 1918. The association with lung cancer was originally accepted in England and Europe

by 1950. By 1960 the risk for mesothelioma from asbestos exposure was documented. American scientists generally accepted the carcinogenicity of asbestos by 1964 (11). Sixteen years later society has yet to decide how to face this reality. The use of asbestos has increased steadily in the meantime. The Royal Commission has already heard in its public meetings the consequences this has had in the lives of individual workers and those who survive them.

A massive education of our society to the realities of our technological environment is required. The risks that are accepted in the use of substances like asbestos, must not be the risks that are acceptable to the corporations who make immediate profit from the use of carcinogens. Risk that need be accepted must be acceptable to those who bear the risk, to individual workers, and to society at large. Society will not be able to have the will for the development of alternate technologies unless there is a widespread understanding that the risks presented by technology are real. The social structure of our profit-oriented economy does not facilitate social change. The information is there that the technological environment needs to be altered to allow economic independence from hazardous substances on a priority basis. Considerable further effort must go into the social awareness of these realities if we are to effectively take responsibility for the economy that we have created.

Corporate Responsibility

Unfortunately society has not been able to bring adequate sanctions to bear on those who have been aware of the serious consequences of asbestos exposure and have kept that information from those who were being harmed and have resisted public appreciation of the magnitude of the problem. Society also must allow those corporations it chooses should remain viable to pass on an adequate portion of the cost of workplace safety in the price of their products. However the corporations who have benefitted from the use of asbestos must squarely face the costs that the use of asbestos has generated. This cost responsibility includes compensation for the harm done to workers' health, the cost for removal and disposal of asbestos in use and the cost of transition to asbestos substitutes where this is feasible. Some levy should be put on corporations that have benefitted from asbestos to be applied to the cost to society from the removal operation on asbestos already in place. A security bond should be placed on employers likely to face heavy future compensation costs because of the workers who have already been exposed to asbestos in their operations. Corporations should not be allowed to pull out of Ontario to leave the rest of the province to pick up the tab for their damages.

Compensation

Three basic principles for fair compensation of workers exposed to asbestos can be stated:

1) the criteria for asbestos-related disease must be established

in an open process. These criteria should not be left to the closed deliberations of the compensation board.

2) because of the long latency period for asbestos-related diseases, documentation should be established with the compensation board of past and present exposure to asbestos.

3) job security should be established for workers exposed to asbestos. They should not be treated as health-related time bombs by other employers when they wish to or are required to change jobs.

Ontario's Role in the Overall Problem

Most of the production of asbestos in Canada occurs in Quebec. There are many provincial, federal and international jurisdictions that are not the immediate concern of the Royal Commission. This reality should not deter the Commission from tackling the full scope of the asbestos problem. Because of its manufacturing base Ontario has the potential to take a leading role in the development of asbestos substitutes. Such initiative would certainly pay off in long-term benefits. Strong pressures exist in many countries to replace asbestos with other technologies. Ontario could become the catalyst to make it happen.

The Royal Commission will not have fulfilled its mandate if it opts for a static treatment of the problem: simply another assessment of the hazard and the statement of an acceptable standard of exposure and acceptable health burden for Ontario. We could make our workplaces and the environment relatively

safe. Canada would still, however, be exporting asbestos on a grand scale to other countries. Especially in third world countries where the concern for health standards may not be as great, severe health consequences could remain. Unless we take the lead to establish technological independence from asbestos, the consequences of that dependence will remain throughout the world. It is not acceptable to try to shelter ourselves from the consequences of asbestos as much as possible at the same time profiting as much as possible from its position in our technology.

The choice that the Royal Commission faces is clear. It can tackle as its top priority the task of outlining a strategy to establish economic independence from asbestos. It can blunt the public outcry for change and delay efforts to truly face the social challenge of asbestos.

Recommendations

The Toronto Occupational Health Resource Committee therefore recommends that:

1) the Royal Commission address its study and recommendations primarily toward economic independence from asbestos and the development of the social responsibilities necessary for this task.
2) that an integrated program to ban asbestos in Ontario be adopted.
3) that adequate research to define safe substitutes for asbestos be undertaken.

4) the role of asbestos in our technology be evaluated so that the substitutes or alternative technologies that are introduced will have the best economic benefits for Ontario.

5) that a crown corporation be established for research and development of substitutes and alternate technologies to replace asbestos and other priority hazardous substances.

6) this crown corporation should enter the marketplace, in a subsidized way if necessary, with asbestos substitutes to facilitate the rapid transition from asbestos-related technology.

7) this crown corporation should ensure the safe removal and disposal of asbestos.

8) the Royal Commission recommend the priorities for the removal of asbestos presently in place and adequate standards for the cleanup and disposal of waste asbestos.

9) a program for public awareness and education be developed to cover the challenges presented to society by our dependence on hazardous substance technologies.

10) this educational program be implemented with full government support in order to make possible the social changes that technological adaptation will require.

11) the immediate costs of asbestos control be assessed to the corporate sector that has benefitted from the use of asbestos.

12) immediate action be taken to prevent corporate pulloutsfrom asbestos responsibility especially in the area of compensation.

13) the hazard of asbestos not be exported to other nations, especially third world countries, for economic profit. With the development of viable alternatives for asbestos use, all production of asbestos in Canada should be stopped.

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DOW CHEMICAL OF CANADA, LIMITED

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January 15, 1980

Royal Commission on Asbestos
180 Dundas Street West
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Gentlemen:

Enclosed is a written submission on uses of asbestos from Dow Chemical of Canada, Limited. Since we and others use asbestos in the production of one of the world's most widely used chemicals, chlorine, we feel that you should be aware of this use.

We thank you for the opportunity to comment on asbestos to aid your investigation and hope that our submission will be of some use to you. If you have any questions please do not hesitate to contact us.

Sincerely Yours,

Richard D Olson

R.D. Olson
Manager, Industrial Hygiene

/mds

STATEMENT

TO THE

ROYAL COMMISSION ON MATTERS OF HEALTH AND SAFETY

ARISING FROM THE USE OF ASBESTOS

JANUARY 15, 1981

BY: Dow Chemical of Canada Limited
Sarnia, Ontario.

STATEMENT TO THE ROYAL COMMISSION ON ASBESTOS

Dow Chemical of Canada, Limited, is a Canadian company with its head offices in Sarnia, Ontario, and 21 manufacturing plants and sales offices across Canada. Dow is a major producer of basic organic and inorganic chemicals, plastics, pharmaceuticals, packaging materials, agricultural chemicals and consumer products. While Dow Canada is well known to the public through its trade names STYROFOAM*, brand plastic foam insulation, SARAN WRAP*, brand plastic film, HANDI-WRAP*, plastic film, and ZIPLOC* plastic bags, by far the largest volume of our products lies in those chemicals which are essential to the continued operation of many primary and secondary industries in Canada.

For many years Dow has realized that potential hazards might exist during the manufacture, transportation and use of its products. We believe the use of appropriate precautions and safeguards is necessary at all stages and as a Company have developed a strong health, safety, loss prevention and environmental program we call our Product Stewardship Program.

The Dow Chemical Company, our parent company with its head offices in Midland, Michigan, has a strong health and safety program with a history of over 40 years. This expertise was used to form the basis of our Canadian program. Our annual expenditures in the field of health and safety in Canada now amount to several million dollars each year. In 1978 for instance, the last year we have complete data for, this figure was about nine million dollars. The Dow Canada program involves medical doctors, industrial hygienists and safety engineers as well as other professionals all devoted to providing a healthy and safe workplace.

Dow is not a producer of asbestos nor asbestos products but does use asbestos in its electrochemical operations. Asbestos is, of course, present also in commercially available products e.g. gaskets and asbestos - cement pipe and in these products is used in very minor amounts through the normal course of business. The use of asbestos for pipe insulation was discontinued several years ago.

Since asbestos is an important factor in the production of chlorine and caustic soda, we appreciate the opportunity to comment to the Royal Commission.

As stated above, the only significant use of asbestos within the Dow Chemical Company, and which is common to all diaphragm cell chlor-alkali producers, is in the fabrication of diaphragms for the electrolytic cells. Because of its physical and chemical characteristics, the Chlor-Alkali Industry is highly dependent upon asbestos, for the present and for the near forseeable future.

The Chlor-Alkali Industry in Canada produced in the range of 1-1/2 million tons of chlorine in 1980, of this about 90% was produced from diaphragm cells. About 350 tons of asbestos, annually, is used in Canada in the production of the diaphragms.

In its concern for the protection of plant personnel and the environment, the Chlor-Alkali Industry has an outstanding record of responsibility. In the early 1900's the Chlorine Institute was established and had as its sole purpose, to establish and promote safety in the handling of chlorine. The scope of the Institute has been increased in recent years to include methods and guidelines to protect the environment. Two publications of note include mercury abatement for mercury cell plants, and asbestos handling guidelines for diaphragm cell plants. A copy of the latter is available from the Chlorine Institute. Dow is a major contributor to the Institute, both financially and through membership representation on the various voting committees.

At Dow we are confident that we are receiving, storing, using and disposing of asbestos in a responsible manner that insures adequate protection of the health of our personnel and of the environment.

Worldwide, there are only two principal chlorine manufacturing routes that exist. One route involves the electrolytic decomposition of brine in cells employing chrysotile asbestos diaphragms, often called the diaphragm cell process. The other involves electrolytic cells containing mercury which has its own environmental concerns, (the mercury cell process). Both yield caustic soda and hydrogen as reaction co-products and therefore present no problems relative to disposal of unuseable products. Other electrolytic and chemical manufacturing routes exist but they account for less than 5% of chlorine production and the chlorine actually is a by-product of other manufacturing objectives (e.g., sodium, magnesium etc.).

In the diaphragm cell process, it is necessary to keep chlorine separated from the alkali metal hydroxide (i.e., NaOH and KOH) co-product to prevent chemical reaction. In the diaphragm cell, separation is achieved by use of a diaphragm which, basically, is a mechanical barrier separating the anolyte and catholyte chambers. This is illustrated in Figures 1 and 2.

The selection of the diaphragm material is critical to the operation of a diaphragm cell. To be suitable, it must have the following properties:

- sufficient mechanical strength;
- high chemical resistance;
- optimum energy efficiency;
- readily depositable on the cathode with uniform thickness and without voids;
- appropriate physical structure to permit percolation of depleted brine with minimum back-migration; and,
- acceptable service life.

These properties are of prime importance as they have a very significant effect on both plant investment and operating costs. Asbestos, in the chrysotile form, is uniquely suitable as a diaphragm material, as it exhibits a most favorable combination of these properties.

A great deal of research has been done to explain the behavior of asbestos in chlor-alkali cell environments. In its application, a layer of asbestos is drawn by suction from an aqueous suspension of fibers onto a cathode frame. This continuous sheathing is the diaphragm. It is well established that the deposited fibers do not merely function as a deposited mat such as is found in a filter bed. The gel layer that forms in the mat under proper cell diaphragm depositing and operating conditions plays an important role in the performance of the diaphragm, particularly in optimizing power efficiency.

Asbestos diaphragm service life has been increased and thus consumption per ton of chlorine produced has been significantly reduced over the years through advancement in cell design, improved brine purification techniques and new anode materials. The change to metal anodes during the 70's has at least doubled diaphragm life compared to experience with graphite anodes. Other developments, notably resin bonding of the deposited asbestos fibers, increases stability of asbestos diaphragms and may further extend their life.

In summary, asbestos is the only presently acceptable material for chlor-alkali cell diaphragms. When handled properly, it can be used and disposed of safely both with respect to worker health and protection of the environment.

As already noted (and illustrated in Figure 1 and 2) asbestos diaphragms are contained within a fully-enclosed system which minimizes opportunities for environmental dispersion. In terms of inhalation exposure, the principal potential sources are associated with asbestos receiving, storage, weighing, diaphragm-depositing and cell-rebuilding operations. Each of these operations take place in dedicated areas, some having restricted access. Regulatory provisions in existence and proposed by the Ontario Ministry of Labour apply. In addition Chlor-Alkali Industry guidelines of good practice are used. These guidelines are discussed in the Chlorine Institute publication MIR-137.

Exhaustive and continuous efforts are made by the industry to minimize the number, frequency, duration and extent of worker exposures. Studies have not indicated any unusual incidence of pulmonary or other disease in the Chlor-Alkali Industry. (Ref.: Patil, L.S. et al. The Health of Diaphragm Cell Workers Exposed to Chlorine. AIHAJ, 31, 687, Nov. - Dec. 1970). No cases of asbestos-related disease or any other measurable adverse environmental effect has been reported in over 80 years of asbestos use in connection with chlorine manufacture.

The co-products produced utilizing asbestos diaphragms, chlorine and caustic, are fundamental to Canada's well-being and comfort. They are cornerstone materials of the chemical industry.

Approximate Canadian end-uses patterns for chlorine and caustic are as follows:

CHLORINE		CAUSTIC	
Plastics (e.g., PVC)	25%	Diverse Chemicals	35%
Solvents	10	Pulp/Paper	0%
Other Organic Chemicals	17	Aluminum Manufacturing	30%
Inorganic Chemicals	12	Textiles	5%
Pulp/Paper Bleaching	30	Petroleum Refining	5%
Water/Wastewater Treatment	6	Miscellaneous	20%

From these data it is readily apparent that the chemical industry itself is the largest consumer of chlorine, and that everyone benefits by its thousands of product applications. The same is true also of co-produced caustic.

Obviously any major disruption of present chlorine manufacturing operations could have potentially serious effects. Moreover, any unilateral national policies as might be contemplated, such as prohibiting some or all asbestos applications, or restricting domestic asbestos mining operations, could have worldwide reverberations; the trade balance amongst industrial nations could be upset consequences.

As well as an internal user of asbestos, Dow is a supplier of products to the asbestos converting industry. Specifically, Dow supplies latex, produced at our manufacturing site in Sarnia, Ontario, to the asbestos roofing and flooring felt industries. The latex, an aqueous emulsion, deposits on the surface of the asbestos fibre while in the slurry stage of felt manufacture and bonds the resultant asbestos mat together during the forming and subsequent converting stages. Final products are the familiar asphaltic roofing felts and vinyl flooring materials. The latex primarily bonds the asbestos fibres tightly together thus giving the felts strength, but is also a significant contributor to containment of harmful short fibres both during manufacture and in the final product. Follow-up coating of felts with vinyl or asphalt results in further containment of asbestos fibre and a well protected final product. Needless to say this approach is not pertinent to all uses of asbestos.

Thank you for this opportunity to have input to your investigations on asbestos. Dow Chemical of Canada, Limited, believes that exchanges of information on subjects such as this allow all parties to be more aware of the total issue. We would welcome any questions you might have.

JANUARY 15, 1980

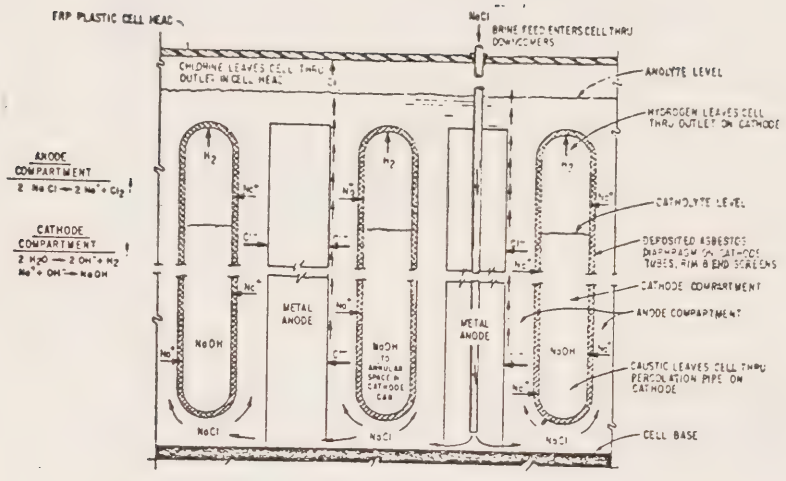

FIGURE 1. BASIC CHEMICAL REACTIONS WITHIN DIAPHRAGM CELL
(Note function of asbestos as a separator)

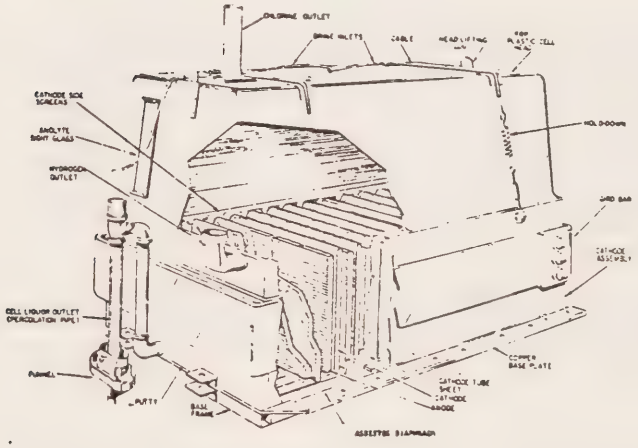

FIGURE 2. CUT-AWAY OF A SINGLE DIAPHRAGM CELL
(Note that asbestos is fully enclosed within the cell. A modern, 1000 ton/day chlorine plant may contain as many as 200 such individual cells.)

THE BOARD OF EDUCATION FOR THE CITY OF TORONTO
155 College Street, Toronto M5T 1P6, Canada, 598-4931

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January 16, 1981

Dr. J. Stefan Dupre, Chairman,
Royal Commission on Matters of Health and
Safety Arising from the Use of Asbestos
in Ontario,
180 Dundas Street West,
22nd Floor,
Toronto, Ontario.
M5G 1Z8

Dear Dr. Dupre:

There are various reasons why any institution might desire 'special status' from a Commission such as yours and the most common reason is probably a financial one. However, the Toronto Board of Education's request is based on the very composition of its schools and the social conscience which guides it in the protection of its occupants.

By law, children between the ages of 6 and 16 are required to attend schools (Education Act, Sec. 20 ss. 1(b)), and some of the school buildings pose a health hazard because of the presence of asbestos. The Board is also required to keep its "school buildings and premises in proper repair and in a proper sanitary condition" (Education Act, Sec. 146 ss. 6 and 7). It should also be borne in mind that children are more susceptible than adults to any disease, virus or health hazards. It would not make sense to remove asbestos from the future workplaces of our students, without first removing it from our schools and, therefore, on matters of health and safety arising from the use of asbestos in Ontario, schools should be given first consideration.

In many cases the Toronto Board of Education may be exposing young children to asbestos for up to 15 years or more, but children enrolled in our schools are not the only ones affected. In addition to our daytime school population, our schools are occupied extensively by over 3.5 million community users of the facilities. The variety of groups using our schools ranges from infants in the infant care program to senior citizen groups meeting regularly. It is important to note that the Board employs over 9000 people representing all building trades and non-teaching positions, which may or may not be unionized. It should also be noted that some Board employees; i.e. teachers, cannot benefit from the protection offered by the Industrial Health and Safety Act of 1978. This submission could continue to point out several unique reasons why schools deserve special status. However, the underlying reason is that schools are a very specific type of public building deserving of special status.

In the absence of absolute safety levels, as they relate to young people, the Board has made the decision that all friable asbestos in our schools must be neutralized. The Toronto Board of Education has conducted in-depth investigations by its Task Force and has already committed itself to the parents, students and employees, to resolve the asbestos problem.

.../2

The Board, however, needs the support of the government to fulfill its commitment. Thus, it would be to the children's advantage, and for that matter, to the advantage of all parties concerned, that your commission provide the Government with an interim report on the special status of schools.

To aid you in the report, we have enclosed a brief outline of the full extent of the problem our Board faces. Again, we ask that you acknowledge the uniqueness of our case, because of the severity of the potential problem.

The Toronto Board of Education requests ~~that the Royal Commission~~ provide the Government with an interim report on the special status of our schools ~~and the need for~~ action, and forwards the following recommendations:

It is recommended:

1. That Special Status be given to schools with health hazards related to asbestos.

2. That the Toronto Board of Education be supported in the removal and/or encapsulation of all friable asbestos in its schools.

3. That the Provincial Government provide long-term moral and financial commitment to solving problems arising from the use of asbestos in our schools.

Yours very truly,

E. N. McKeown

EDWARD N. McKEOWN
Acting Director of Education

Encl.

THE EXTENT OF THE PROBLEM

A Survey of Toronto Board of Education facilities for the Presence of Friable Asbestos

January 1981

PUBLIC SCHOOLS	LOCATION OF HAZARDOUS FRIABLE MATERIALS	*METHOD OF CORRECTION	EXTENT OF AREA IN SF	CONTRACT ESTIMATES	ESTIM. INCLUDING FEES & CONTINGENCIES
Alexander Muir and Gladstone	Boiler Room Ceiling	B & D	1,764	$10,500.00	$12,300.00
Allenby	Fire Stop Flaps	E	5	2,000.00	2,400.00
Annette	Gym Ceiling (not friable)	A & D ✓	4,800	28,800.00	33,900.00
Balmy Beach	Fire Stop Flaps	E	87	34,800.00	40,900.00
Blake	Fire Stop Flaps	E	192	76,800.00	90,300.00
Bowmore Road	Boiler Room Ceiling	B & D	1,108	6,600.00	7,800.00
Brown	Fire Stop Flaps	E	226	90,400.00	106,300.00
Bruce	Fire Stop Flaps	E	6	2,400.00	2,800.00
Christie	Structural Steel Fire Proofing Ceiling Space - Total School	B C D	84,958	680,000.00	799,700.00
Clinton	Fan Room Ceiling	C & D	242	3,000.00	
	Beams & Columns above Ceilings - Total School	B C D	68,800	550,000.00	650,300.00
Metro School for Deaf	Boiler Room	B & D	2,532	15,200.00	
	Soundproofing above Ceilings	B & A ✓	47,885	191,000.00	242,500.00
Deer Park	Boiler Room Ceiling	B C D	1,614	10,000.00	
	Fan Room Ceiling	B C D	1,125	6,800.00	
	Swimming Pool, Roof Deck & Suspended Ceiling	B D & E	4,128	75,000.00	108,000.00
Dewson	Boiler Room & Fan Rooms	B C D	2,101	12,600.00	
	Structural Steel Above Ceilings - Total School	B C D	57,727	462,000.00	558,100.00

PUBLIC SCHOOLS	LOCATION OF HAZARDOUS FRIABLE MATERIALS	METHOD OF CORRECTION	EXTENT OF AREA IN SF	CONTRACT ESTIMATES	ESTIMAT INCLUDIN FEES & CONTINGENCIES
Earl Grey	Extensive Area of Asbestos Board in Sensitive areas-Kitchen Servery,Stage,Corridors	C E & A ✓	29,395	$ 60,000.00	$70,600.00
Earlscourt/ Stella Maris	Structural Steel & Fire Proofing Above Ceilings 1965/69	B C D	63,205	506,000.00	595,100.00
Essex	Structural Steel Fireproofing 1966	C & D	2,399	24,000.00	31,800.00
	Academic Storage	C & D	274	3,000.00	
Fairmount Park	Pool, Roof Deck and Structure	B & D	6,094	75,000.00	88,200.00
Forest Hill (North Bldg.)	Basement Toilets-Ceilings 1st Floor Corridor	C & D	5,213	31,300.00	36,800.00
General Mercer	Fire Stop Flaps	E	4	1,600.00	1,900.00
Glenview	Fan/Boiler Rm/Stage	B C D	4,642	37,100.00	910,300.00
	Structural Steel above Ceiling-Total School	B C D	74,107	593,000.00	
	Swimming Pool Area	B C D	17,971	144,000.00	
Hillcrest	Fire Stop Flaps	E	22	8,800.00	10,300.00
Indian Road	Boiler Room	B & D	996	6,000.00	382,200.00
	Fan Rooms	B & D	996	6,000.00	
	Structure above all Ceilings - Total School	B C D	39,169	313,000.00	
Jackman	Fire Stop Flaps	E	37	14,800.00	49,700.00
	Fan Room #7, Steel above Stage & G.P. Room	B & D	2,751	27,500.00	
John Fisher	Beams in Engineer's Office & Incinerator Room	B & D	500	3,000.00	3,500.00

PUBLIC SCHOOLS	LOCATION OF HAZARDOUS FRIABLE MATERIALS	METHOD OF CORRECTION	EXTENT OF AREA IN SF	CONTRACT ESTIMATES	ESTIMATE INCLUDING FEES & CONTINGENCIES
John Wanless	Fire Stop Flaps	E	4	$ 1,600.00	$ 1,900.00
Kensington	Fire Stop Flaps	E	148	59,200.00	69,600.00
Kent	Fan Room (1960)	C & D	496)	7,700.00	79,600.00
	Fan Room (1908)	C & D	789)		
	Gym & Stage	C & D	6,004	48,000.00	
	Music Rooms 243, 222	A & E ✓	2,008	12,000.00	
King Edward	Gym & Gallery Ceilings	B & D	6,885	41,300.00	48,600.00
Lord Lansdowne	Car Park Ceiling	B & D	6,395	38,400.00	74,400.00
	Stair Tower #3, Mechanical Services, Boiler Rm. Engineer's office, Fan Rms. 1 & 2, Dead Storage	C & D	4,144	24,900.00	
McMurrich	Steel Structure above Ceiling 1966	B C D	21,514	172,000.00	202,300.00
Montrose	Fire Stop Flaps (1972)	E	6	2,400.00	2,800.00
Morse	Structural Steel 1st & 2nd Floor - Ceiling space used as Plenum	B C D	37,765	300,000.00	352,800.00
Norway	Fire Stop Flaps	E	55	22,000.00	25,900.00
Osler	Fan Rooms - Basement, 1st, 3rd, and 4th floors	C & D	2,806	22,400.00	26,300.00
Parkdale	Structural Steel Fire Proofing above Ceiling	B C D	67,147	537,000.00	631,500.00
Pauline/St. Sebastian	Fire Stop Flaps	E	15	6,000.00	7,100.00
Perth	Fan Rm., Incinerator, Boiler Rm. (1964)	C & D	2,700	16,200.00	34,600.00
	Fire Stop Flaps 1977	E	33	13,200.00	

PUBLIC SCHOOLS	LOCATION OF HAZARDOUS FRIABLE MATERIALS	METHOD OF CORRECTION	EXTENT OF AREA IN SF	CONTRACT ESTIMATES	ESTIMAT INCLUDING FEES & CONTINGENCIES
Queen Alexandra	Girl's Gym Ceiling	B & D	2,388	$ 19,100.00	$ 22,500.00
Regent Park	1958 Boiler Room	A ✓	1,137	9,100.00	
	1966 Structural Steel Above Ceilings	C & D	32,537	260,000.00	316,500.00
Roden	Column Heads in Ceiling Plenum, Eliminate Plenum	C & D	80,597	280,000.00	329,300.00
Sunnyview	Fire Stop Flaps (1978)	E	2	800.00	
	Fire Curtain	E		15,000.00	18,600.00
Whitney	Fan Room, Duct Shaft Ceiling	C & D	1,406	11,200.00	13,200.00
Winona	Boiler Room	C & D	1,904		
	Fan Room		2,080	28,300.00	
	Service Tunnel	B C D	718		
	Structural Steel		71,116	569.000.00	914,100.00
	Fireproofing School	C & D			
	Pool		18,095	180,000.00	
Withrow	Column Heads in Ceiling Plenum	C & D	71,108	246,000.00	289,300.00
	Eliminate Plenum	-			
Woodfield	Fire Stop Flaps 1973 and Health & Dental Area	E	19	7,000.00	8,900.00
		TOTAL ESTIMATE - ELEMENTARY SCHOOLS			$8,305,500.00

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SECONDARY SCHOOLS	LOCATION OF HAZARDOUS FRIABLE MATERIALS	METHOD OF CORRECTION	EXTENT OF AREA IN SF	CONTRACT ESTIMATES	ESTIMATE INCLUDING FEES & CONTINGENCIES
Bloor C.I.	Boiler Room 1963	C & D	1,645	$ 9,900.00	$ 356,200.00
	Structural Steel above Ceiling 1963 Addition	B C D	36,662	293,000.00	
Brockton H.S.	Structural Steel above Ceiling School	A ✓	182,819	731,000.00	939,000.00
	Structural Steel above Ceiling Pool	A ✓	16,948	68,000.00	
Castle Frank H.S.	Ventilation & Equipmt. Rm.	B	3,176	10,000.00	23,500.00
	Pool Gallary	A ✓	3,500	10,000.00	
Central Tech. Main Building	Upper Stage Ceiling 1950 Beam below Stage Front	B C D	2,423	29,000.00	191,700.00
Art Building	Instructional Areas (see small scale)	B & E	16,779	134,000.00	
Danforth Tech.	1961 - Structural Steel above Ceilings	B C D	57,734	462,000.00	1,224,200.00
	1966 - Structural Steel above Ceilings	B C D	72,364	579,000.00	
Eastern H.S. of Comm.	Fan Rms. & Boiler Rm.	C & D	2,430	14,600.00	17,200.00
Forest Hill C.I.	Fire Stop Flaps (1974)	E	8	3,200.00	3,800.00
Greenwood	Fire Stop Flaps	E	13	5,200.00	6,100.00
Heydon Park S.S.	Structural & Slabs above & below Hard of Hearing Classroom #33	C & A ✓	2,000	12,000.00	14,100.00
Humberside C.I.	Structural Steel behind Ceiling-Unit A 1966	B C D	29,788	380,000.00	446,900.00
	Underside Gallery - Unit B 1966	B C D	2,734		
	Structural Steel above Auditorium and Stage	B C D	9,915		
	Upper Attic Fan Room	B C D	5,083		

SECONDARY SCHOOLS	LOCATION OF HAZARDOUS FRIABLE MATERIALS	METHOD OF CORRECTION	EXTENT OF AREA IN SF	CONTRACT ESTIMATES	ESTIMA... INCLUDI... FEES & CONTINGENCIES
Jarvis C.I.	Steel Structure and Cafeteria Deck 1970	B & D	35,935	$287,000.00	
	Swimming Pool Structure 1970	B C D	16,954	205,000.00	$ 578,600.00
Lawrence Park C.I.	Fan and Storage Room 1966	C & D	1,690	13,500.00	
	Steel Structure Above Ceiling 1966	C & D	14,493	116,000.00	154,200.00
	Fire Stop Flaps	E	4	1,600.00	
Malvern C.I.	Steel Structure above Ceiling 1964	B C D	16,700	134,000.00	157,600.00
Monarch Park S.S.	1963 & 1965 Steel Structure above Ceiling	B C D	197,125	1,577,000.00	1,854,600.00
Northern S.S.	Steel Structure above Ceilings 1962	B C D			
	Steel Structure above Ceilings 1966	B C D	23,008	184,000.00	216,400.00
	Steel Structure above Ceilings 1969	B C D			
Oakwood C.I.	Steel Structure above Ceilings 1958 Alterations		No Area		
	Steel Structure above Ceilings 1958	B C D	38,092		
	Steel Structure above Ceilings 1962	B C D	37,992	651,000.00	765,600.00
	Steel Structure above Ceilings 1968	B C D	35,348		
	Fan Rooms 1968	B C D	1,746		
Parkdale C.I.	Fan Room 1963 Storerooms #4A #3 1963 Boiler Room	C & D	7,430	59,000.00	
	Steel Structure above Ceilings 1963	B C D	45,891	367,000.00	501,000.00

SECONDARY SCHOOLS	LOCATION OF HAZARDOUS FRIABLE MATERIALS	METHOD OF CORRECTION	EXTENT OF AREA IN SF	CONTRACT ESTIMATES	ESTIMATE INCLUDING FEES & CONTINGENCIES
Parkview S.S.	Elevator Shafts-Fan Room Boiler Room-Machine Room Corridor 7th Floor	C & D	12,325	$ 99,000.00	
	Steel Structure above Ceilings-Stairwells, Corridors, Gym. Storage Outside Stores, Music Rm.	C & D	35,097	281,000.00	$ 446,900.00
Riverdale C.I.	Fire Stop Flaps 1972	E	17	6,800.00	8,000.00
Western Tech.	Duct Spaces from Rooms	A ✓	4,928	39,400.00	
	Steel Structure above Ceilings	B C D	36,992	296,000.00	394,400.00
West Park S.S.	Fan Rooms	C & D	11,437	91,000.00	
	Steel Structure above Ceilings of Circulation Areas also Columns	B C D	48,694	390,000.00	565,700.00
		TOTAL ESTIMATE - SECONDARY SCHOOLS			$8,866,300.00
Education Centre	Basement Pump and Tank Room	A ✓	1,349	11,000.00	12,900.00
		TOTAL ESTIMATE ADMINISTRATION BUILDING			$ 12,900.00
		GRAND TOTAL ESTIMATE (1980 Costs)			$17,184,700.00
		REMEDIAL PROJECTS COMPLETED OR UNDERWAY			$ 489,543.00

* A. Encapsulation
B. Removal By Vactor Vacuum
C. Removal By Hand
D. Restoration of Sprayed Fireproofing and Sound Proofing
E. Substitution

SUPPLEMENTARY SUBMISSION TO

The Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario

SUBMITTED BY

Canadian Union of Public Employees, Ontario Educational Institutes Co-ordinating Committee

Particular note should be made of the "Clifton Grant Case". The diagnosis of Mesothelioma proved a direct link to asbestos exposure. Clifton Grant had only twelve years of exposure with Scarborough's School Board. Previous to that he was living in the West Indies. This could mean that the latency period was twelve years; an extremely short length of time.

We have always assumed that the latency period in Mesothelioma cases was twenty to thirty years. The Grant case may show this to be untrue. If so, the predication can be made that children who start school at five years of age may develop this type of cancer by the age of seventeen. This concept is a frightening one.

The Commission may like to pursue this avenue and determine the incidence of Mesothelioma according to age.

BRIEF
TO

The Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario

SUBMITTED BY

Canadian Union of Public Employees,

Ontario Educational Institutes

Co-ordinating Committee

Of the total membership of the Canadian Union of Public Employees, in excess of one hundred thousand reside within the Province of Ontario and approximately twenty thousand are employed by boards of education and universities. These members are represented by one hundred and twenty-two (122) locals and are employed by one hundred and one (101) different boards of education across Ontario.

The Ontario Educational Institutes Co-ordinating Committee, as its name implies, co-ordinates the activities of our educational sector local unions. Our concerns which give rise to this submission are not only as employees whose work environment contains hazardous properties, but also, concern for students within the school systems and the general public who utilize these same facilities.

Many, many studies already conducted clearly establish that exposure to asbestos can result in various diseases directly attributable to that exposure. Without doubt, many submissions to you will further reinforce this and we see no need to add to the weight of medical evidence available. The mere fact that this Commission was established confirms our earlier statement and surely this was further confirmed by the response of the Chairman on October 31st to a suggestion made to him. At that time, Mr. Dupré stated "You wonder whether this Commission is too late. And I think that one of the burdens we all bear is that commissions of inquiry that are spawned by matters that involve human tragedy are, by definition, almost bound to be too late. My colleagues and I appreciate very much the extent to which there is an individual human tragedy background, for some Canadians and others.....some who are no longer with us, to an inquiry such as this." Surely, the only questions to be answered are:

1. What levels of exposure, if any, can we ascertain as being safe?
2. How can we best achieve the objectives demanded of us in answering the first question?

As earlier indicated, we have very real concerns in this area and our concerns are well founded. To a large extent, the causes of our concerns were those events that precipitated formation of this Commission. Asbestos has been shown to exist in many educational facilities within Ontario and two (2) deaths have been caused by asbestos related diseases attributable to exposure in these facilities. At the present time, these are the only instances of fatalities which we are aware of. However, the conditions experienced in the Borough of York and the Borough of Scarborough exist elsewhere and it is likely that similar tragedies have occurred but not been accurately diagnosed. Suffice to say, conditions cannot be left unchanged.

As a result of directives issued by the Ministry of Education, all educational facilities in Ontario have supposedly been examined for asbestos. We say 'supposedly' because in numerous cases, physical examinations ~~were not conducted.~~ In fact, not even visual examinations were conducted. Rather, we are told, the examination for asbestos consisted of someone looking at blueprints. To their credit, some boards of education did conduct thorough, visual and physical examinations.

In too many instances, ~~the method of inspection is totally inadequate. Examination of blueprints is not satisfactory.~~ While specifications might have called for certain materials to be used, often times, substitutes are used. The likelihood of this occurring is magnified when renovations, alterations and routine repairs are considered. The only way to be truly certain, is by physical examinations being conducted by trained, competent, personnel. In our opinion, this is too important a matter to leave to chance. Examinations of all educational facilities in Ontario must be conducted by trained teams that would be led by Ministry of Labour personnel. In view of their intimate knowledge of the physical plants, caretaking and maintenance staff would be invaluable in all physical examinations done and accordingly should participate.

In view of the widespread concern, all results must be publicly disclosed. All too often, this information has been denied. In a recent letter to us the Minister of Labour refused to divulge results of tests conducted across Ontario. However, he did state that information should be made available to us by the individual boards of education. This has not happened. In a survey of our locals, 31% of those responding were not aware of any tests being conducted and four (4) responses indicated the presence of asbestos that had not been discovered in the examinations done. In 56% of responses, the results of the examinations were not divulged or discussed with the local unions involved. This is of great concern to us, particularly in view of the Harbord Collegiate situation in Toronto, where students, teachers and office staff were sent home because of the presence of asbestos, while caretaking staff were not issued any protective equipment, yet were expected to continue working. Even more flagrant, has been the attitude displayed by the Board of Education for the City of Windsor. In September of 1979, they reported there were no asbestos problems. In November of 1980, they admitted to not following Ministry of Education guidelines and that there was "a potential health hazard from asbestos particles in fourteen (14) schools". This cavalier attitude cannot be tolerated.

Having identified the presence of asbestos, there must be a satisfactory resolve. There are no studies that have conclusively established safe levels of exposure. On the contrary, studies have only been able to establish those levels that are not safe. Speculation, conjecture and assumptions are not valid criteria. In the absence of conclusive proof to the contrary, there can be no acceptable safe levels. This is particularly so when we recognize that the so called "acceptable levels" cannot be proven for many years and then they can only be contradicted through further tragedies. All too often, those levels that are proposed as being acceptable are not those that are physically achieveable, but rather, those that are economically acceptable to the industry.

The three options available in eliminating hazardous, or potentially hazardous concentrations of asbestos are;

1. removal
2. encapsulation
3. isolation.

In our opinion, the only permanent and safe solution is the complete removal and replacement of asbestos. Any other method only defers the problem. No matter how effective material used for encapsulation might be, the likelihood remains of particles breaking away. In the event of fire, any method other than removal makes exposure inevitable. Total removal is obviously done with most stringent safeguards. When routine maintenance, emergency repairs or renovations are carried out it is quite possible that those same safeguards would not exist. Also to be considered, is the cost of continuous monitoring and examining if a method other than removal is used.

It is evident that various methods of removal have been used, with varying levels of expertise. Any removal programme must be developed with and approved by the Ministry of Labour and be monitored throughout. In addition, all employee groups affected should be involved and all plans disclosed to the public. If private contractors are used in the removal process, they should be required to post a performance bond that would be forfeited should inadequate removal or disposal procedures be used. Monitoring would consist of daily inspections by the Ministry of Labour and joint health and safety committees.

Current methods of disposal are not acceptable. Burial in plastic bags at a landfill site is ludicrous. To the best of our knowledge, we have yet to develop a plastic bag that can stand up to a twelve (12) ton bulldozer. Disposal should be at special designated sites and in containers that will not break open. Guidelines must be established and enforced by the Ministry of the Environment and continuous monitoring of disposal sites is required.

While we recognize that the Ministry of Education has made available funds that cover most of the costs incurred by boards of education in this area, more is required. In the face of declining enrolment, boards of education are forced to contemplate the closing of many schools. Costs incurred in asbestos removal might very well encourage boards to close schools that would otherwise have remained open or to cut back in other areas. Asbestos removal must not be influenced by other financial considerations nor can it influence educational programmes. In order to insure that necessary educational programmes are not curtailed and that removal of all hazardous asbestos proceeds with the greatest of urgency, all costs should be absorbed by the Ministry of Education.

Bulk sampling is no doubt the best method of determining the presence of asbestos. In conjunction with this, air sampling should also be done. To be valid, any tests must encompass enough samples to insure that nothing is missed. In the abstract, it is impossible to determine the minimum number of samples required. However, that number could and should be determined by joint health and safety committees. We are concerned about the accuracy of any tests conducted and the competency of those performing tests. Electronic microscopes should be used and a certification program developed for technicians in this field.

In most cases, those responsible for the utilization of asbestos in the construction of educational facilities were not aware of its dangers. A very real possibility exists that substitute materials might be equally hazardous. Wherever possible, substitute material used should be proven safe. If any doubts exist, continuous testing and monitoring is warranted.

In view of the foregoing, we therefore call for:

1. A thorough physical examination of all educational facilities in Ontario. Such examinations to be conducted by personnel from the Ministry of Labour, with the participation of caretaking and maintenance staff of all buildings examined. In addition, examination teams should include representation from affected employee groups.

2. Results of all examinations must be presented to all employee groups and made available to the public.

3. Complete removal of all asbestos from educational facilities within Ontario.

4. All removal programmes to be developed in conjunction with affected employee groups and relevant community organizations. All removal and disposal programmes to be subject to final approval by the Ministry of Labour.

5. Performance bonds be posted by any firms employed in removal programmes.

6. During removal process, mandatory daily inspections by Ministry of Labour inspectors and joint health and safety committees.

7. That suitable containers be required for transportation and disposal of asbestos and that special disposal sites be designated by the Ministry of the Environment and that such sites receive constant monitoring.

8. Total cost of asbestos removal in educational facilities to be borne by the Ministry of Education.

9. In all testing, electronic microscopes be used and number of samples tested to be determined by joint health and safety committees.

10. That standards be established for test procedures and certification program developed for technicians involved.

11. Substitute materials to be proven safe or subject to continuous testing and monitoring until proven safe.

The action warranted will be expensive. Failure to act will be more expensive, both in terms of human suffering and financial cost to the community. Our children spend a great many years within the school system. Their years of exposure are more than those of many of the proven victims.

All briefs to this Commission are obviously self-serving, in that they are designed to support the point of view of those submitting them. Ours is no exception in that it is predicated by an overriding concern for the environment in which we work. As taxpayers, we will bear the cost of corrective measures. However, we are convinced that economic considerations must be secondary. You cannot equate human tragedy to dollars and cents.

January 16, 1981
opeiu 491/pw

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BRIEF:
TO: THE ROYAL COMMISSION ON MATTERS OF HEALTH & SAFETY ARISING FROM THE USE OF ASBESTOS IN ONTARIO.

SUBMITTED BY: BERNIE OLDHAM - On Behalf of THE CANADIAN UNION OF PUBLIC EMPLOYEES METROPOLITAN TORONTO DISTRICT COUNCIL

CONTENTS

ASBESTOS

Asbestos has been in use in varying degrees for many years. However, the widespread use of Asbestos expanded greatly by the early 1940's, and continued to grow on into the late 1960's. A large number of commercial uses were developed for the product such as a fire retardant compound sprayed between walls and ceilings in most high rise complexes, and many commercial uses such as asbestos floor coverings, brake linings for automobiles, and is found in wide use in varying forms as a quality product for fire prevention. Its' unique qualities permit its' use in a vast number of compounds.

Asbestos was considered to be a miracle product. Canada is one of the worlds major producers of asbestos along with the U.S.S.R. and South Africa. During the boom of the asbestos industry, little thought or consideration was given to adverse effects that might be caused from exposure to asbestos. It has only been in recent times that a relationship has been drawn between exposure to asbestos and disease. It is now known that several types of diseases are caused from exposure to asbestos such as lung cancer, mesathelioma, cancers of the stomach, esophagus and other organs.

However, exposure to asbestos and development of diseases related to the exposure usually does not occur until after a period of some years of incubation (15 to 35 years). The period of latency, to a degree, is related to the exposure level. One of the major difficulties in diagnosing cancers related to asbestos exposure is this prolonged latency period. Some people have been exposed to asbestos at a particular work site and many years later have developed a cancer due

to that exposure and only exhaustiveinvestigation can connect that initial exposure with the present disease. Also, other pollutants that people are exposed to in the environment complicate the diagnosis of asbestos related cancer, especially for those who smoke as well as being exposed to asbestos.

A great deal of debate has revolved around the question of what exposure levels are acceptable, and what levels may cause a high risk. At present, the standard level is 0.2 fibres per cm^3. However, when tests are performed to determine the amount or level of asbestos that is present, only particles being a length-to-width ratio of 3 to 1, and a length of 5 micrometers or greater is counted as fibre. Also, the length of time of exposure is calculated and a weighted average factor is obtained. Thus, many minute particles of asbestos may be present and are not considered in the calculations. As indicated by most studies, a high level of concentration of asbestos over a long period of time is required to contract mesathelioma and in our view, does not present the major concern. We are of the view that the major problem that exists with asbestos is the possibility of contracting various types of cancers, the most common being cancer of the lung. It has been proven that asbestos is in fact a carsiogenic, and that the natural body function is not capable of completely eliminating the asbestos fibers from the respiratory system. However, asbestos that enters the lungs will remain there indefinitely and over a period of time and exposure, will accumulate and possibily begin the incubation process for the development of disease.

We submit that the grave and serious problem that exists with ragard to asbestos exposure must be addressed without delay. That problem being the process whereby exposure to asbestos in all forms and environments must be brought to the lowest possible levels of detection.

World Production of Asbestos

Annual Figures as at August - 1978

	Tonnes
U.S.S.R.	2,650.000
Canada	1,572,000
Southern Africa	783,000
Europe	353,000
China	250,000
U.S.A.	150,100
South Central America	130,000
Australia	80,000
Others	50,350
TOTAL	6,018,450

Source: Asbestos Information Centre Ltd.

TYPES OF ASBESTOS

There are four main types of asbestos, all of which are chemically different and, hence, have different properties and applications:

1. Chrysotile, known as white asbestos, occurs as fine flexible white fibres. It is mined mainly in Canada,

Russia and Rhodesia and is the most common of asbestos minerals.

About 95% of the asbestos uses in Canada is of this type. It can be attacked by acids and its fibres are normally curved.

2. Amosite, a straight brittle fibre is light grey to pale brown in colour. It is mined in South Africa and is acid resistant.
3. Crocidolite, a straight fibre, blue in colour, is mined in South Africa, Western Australia and Bolivia. It is acid resistant and less flexible than chrysotile, but has greater tensile strength.

   This type produces the most severe asbestosis.
4. Anthrophylite, a brittle white fibre, is mined in Finland and U.S. and is acid resistant.

Other types of asbestos include tremolite (not used commercially and actinolite.

More than 90% of the chrysotile asbestos mined and milled in Canada is exported. Canada imports two other types, amosite and crocidolite asbestos. It has been estimated that, given existing reserves, the current rate of production in Canada can be sustained for nearly 50 years.

ASBESTOS RELATED DISEASES

Originally asbestos health hazards were considered only in the occupational setting and it was generally recognized that prolonged and heavy inhalation of asbestos fibres could cause asbestosis, which is a chronic and debilitating lung disease. The first case of asbestosis (pulmonary fibrosis) was noted in England in 1900.

As more data became available and further research was completed, it became evident that the inhalation of asbestos fibres increases the risk of other diseases, such as lung cancer and mesothelioma, as well as cancer of the esophagus, stomach, colon and other organs. The first cases of lung cancer were reported in England in 1935. Mesothelioma was first reported as being caused by asbestos in 1954. The association of asbestos exposure and cancer of the gastrointestinal tract was reported in 1974.

The indestructibility of asbestos fibres, their small size and fibrous shapes, make asbestos an unusual environmental contaminant. Asbestos fibres cannot easily be destroyed or degraded and the sizes and shapes of these fibres permit them to remain airborne for long periods of time. The normal cleansing mechanism of the lung would quickly remove more than 90% of any inhaled fibres, but those that are retained will remain indefinitely.

The time between the first exposure to asbestos and development of asbestos-related disease is generally 15 to 35 years. The length of latency period depends upon the level and duration of exposure.

The fibrous types are composed of asbestos and mineral fibres (i.e. fibreglass, rock wool). Different makers have their own individual binding agents. Special spray guns were used to combine the dry fibrous materials with water during application to either hard surfaces or open lath structures. This group of materials is soft and spongy, porous, lightweight and friable. A friable asbestos material is defined as any material containing more than 1% asbestos by weight that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure. Sprayed-on thicknesses generally exceed 3/4 of an inch. In most instances, the material is shielded by suspended ceiling systems or may be exposed in non-public areas of buildings, such as fan rooms and storage areas.

Many materials similar in appearance to sprayed asbestos do not necessarily contain asbestos. Some friable materials contain glass fibres, cellulose or other mineral type fibres. However, where friable asbestos-containing materials have been used, they usually contain between 5% and 50% by weight asbestos.

In other instances, asbestos is usually mixed with a cementitious material, which is applied by machine on hard surfaces. This material is more dense, less friable and heavier than the fibrous types. Thicknesses are usually 1/2 inch or less. The major uses for cementitious materials have been for sound absorption or decoration and it is usually located in such areas as main lobbies, corridors, stairwells, music rooms, auditoriums and cafeterias.

Spray application of asbestos fireproofing and insulating material began in England in 1932. In 1950 more than half of the multistorey buildings constructed in the U.S. used some form of sprayed mineral fibre fireproofing. In 1972, after the health hazards of sprayed asbestos were recognized and documented, New York City Council banned spray application. In 1973 the U.S. Environmental Protection Agency (EPA) banned spray application of insulating or fireproofing material containing more than 1 per cent asbestos by weight. In 1978 EPA prohibited the application of sprayed asbestos for nearly all purposes. Manufacturers of sprayed on asbestos material in Canada, as responsible corporate citizens, also gradually eliminated the use of the material, even though no legislative ban was imposed in Canada.

b) Pipe Covering & Boiler Insulation

Friable asbestos material has been used for many years as a pipe covering and boiler insulation. In 1975 the EPA prohibited its use. Most Canadian manufacturers and applicators followed suit shortly thereafter. In the majority of cases, pipe covering and boiler insulation does not create a potential health hazard unless the friable insulation covering becomes broken and the asbestos is exposed.

c) Ceiling Tiles

Not all ceiling tile will necessarily contain asbestos.

If a major renovation project is to be done, a sample of the tile should be submitted to an authorized laboratory (as outlined in recommendation 21, section 7, Sampling and Testing) for bulk analysis to determine if asbestos is contained in the material.

Ceiling tiles are not considered to be friable and should not be of any concern. However, if the tiles are to be sawed, drilled or broken during renovations, maintenance work or demolition, proper precautions should be taken.

d) Asbestos Covered Fire Stop Flaps

Since 1975 it has been mandatory to cover the fire stop flaps of fire-rated membrane ceilings with asbestos paper. This requirement was added to the National Building Code in the fire rating for the tested ceiling assemblies and is now in the Ontario Building Code.

FIBRE DISPERSAL

Fibres may be released from friable materials that are subject to deterioration or direct contact and damage. The release of fibres can also occur during construction or demolition and the material can lose its cohesive strength as it ages.

EXISTING STANDARDS

At present most standards covering the exposure to asbestos deal with occupational health concentrations. But there is even disagreement about what is an acceptable level of concentration in

the workplace. The standards have varied from 12 fibres per cm^3 to the present level of 2 fibres per cm^3. These are fibres greater than 5 micrometres in length gathered over an eight hour period on a time weighted average. Consideration is underway to lowering this figure to 0.1 fibres per cm^3. Where crocidolite asbestos is involved the present maximum approved concentration is 0.2 fibres per cm^3.

The standards allowed for a short-term sampling have varied from 10.0 fibres per cm^3 for a 15 minute sampling to the present value of 0.5 fibres per cm^3. The determination of the airborne concentrations of asbestos fibres in the workplace is done using phase contrast microscopy, which counts all the fibres in the air samples. Any particle having a length to width ratio greater than 3:1 and a length of 5 micrometres or greater is counted as a fibre. This technique does not measure the specific properties of a substance. Consequently all particles satisfying the 3:1 length width ratio are counted as asbestos fibres. In the workplace, where asbestos is handled, the premise that the total number of fibres counted are asbestos is considered a reasonable assumption.

But these tests are inadequate to determine if public exposure guidelines are being violated because the occupational health standards are less stringent than the guidelines for the public. The tentative guideline (not a standard) that is applied in Ontario is 0.04 fibres per cm^3. A similar figure has been arrived at through a study carried out by the British Occupational Hygiene Society (1968).

It was considered that 0.4 fibres of chrysotile asbestos dust per cm^3 would create a negligible risk during a lifetime's working exposure and a divisor of 10 was applied to this level to give a maximum concentration of 0.04 fibres per cm^3 for negligible risk in a non-working situation.

It is interesting to note that in 1978 in Massachusetts a Special Legislative Commission on Asbestos developed its own guidelines for public exposure standards. Air samples were taken in nine schools that did not contain any asbestos and it was established that interpretation of air levels at or below 0.04 fibres per cm^3 was not possible due to normal background fibre levels. Their conclusion was that "airborne fibre concentrations in excess of this value are considered of significance." This lack of definitive standards for airborne asbestos in non-occupational environments and the expense of sampling and analysis as well as a lack of standard analytical procedures (if a true count of actual asbestos fibres is to be made) discourages airborne asbestos testing.

An exposed and friable surface, and the bulk analysis of the quantity of asbestos within the material, should be sufficient to provide the initiative to take action to reduce the potential health hazard as much as possible.

POTENTIAL RISK ASSESSMENT

The relative ease with which asbestos fibres may be released into a building is of primary concern. So, too, is the relative composition

of the asbestos based material.

For the purpose of assessing the potential risk of fibre release, asbestos products used in buildings may be divided into the following categories, in descending order of risk:

a) Sprayed asbestos insulation;
b) Asbestos covered fire stop flaps, stage curtains, fire blankets;
c) Pipe covering and boiler insulation;
d) Ceiling tile;
e) Asbestos cement board, vinyl asbestos floor tiles, asbestos paints.

The highest source of asbestos exposure is fibre release from friable sprayed asbestos insulation. Estimation of exposure risk from such material involves consideration of a number of factors and there is no simple solution for all situations. The primary solution is to reduce the exposure of asbestos to a minimum. There are six factors that may act singly or in combination to cause contamination and exposure of building occupants to asbestos fibres. These are:

a) Friability;
b) Condition;
c) Accessibility;
d) Air plenum or direct air exposure;
e) Activity and movement;
f) Percentage of asbestos.

RECOMMENTATIONS

1. That the Government of Ontario adopt the position that there is no acceptable level of exposure to asbestos.

2. That all public buildings in the province of Ontario be inspected to determine whether or not asbestos materials are present and where asbestos is found, a programme of removal shall be instituted at the earliest possible date.

3. That all employers in the province of Ontario be instructed to determine whether or not asbestos materials are being used or present in their workplaces. Where asbestos is in use, an alternative material will be obtained to replace the asbestos and asbestos materials that are in place at the time of inspection are removed and disposed of.

4. That the Government of Ontario instruct the employers whose workers have been exposed to asbestos to institute a programme of medical examination and tests for workers exposed and this programme shall be continued on a yearly basis and that it be recorded with the Workmens Compensation Board of Ontario, along with the names of the workers who encountered the exposure.

5. That the Government of Ontario develop a set of guidelines and procedures necessary to protect the public and workers who will be engaged in the process of eliminating asbestos from the work-place and all public places.

ALL OF WHICH IS RESPECTFULLY SUBMITTED

SUBMISSION BY COMMUNICATIONS WORKERS OF CANADA
TO
ROYAL COMMISSION ON MATTERS OF HEALTH AND SAFETY
ARISING FROM THE USE OF ASBESTOS IN ONTARIO

The Communications Workers of Canada (CWC) represents approximately 15,000 workers in Ontario. The majority of our Ontario members are employed in Bell Canada. Others are employed in Northern Telecom Canada Ltd., TAS Communications Services and other small communication companies. Our members work on a wide range of tasks including: constructing outside telephone plant; installing and maintaining telephone switching central office equipment, PBX facilities and data transmission facilities; installing and repairing residential and business subscriber telephone equipment; performing operator services work; installing and maintaining various communications systems for customers.

We have a deep interest in the work of the Royal Commission because, during the course of their duties, many of our members are exposed to asbestos - indeed in many cases without being aware of it at the time.

Our submission at this stage is mainly on the following points:

1. Exposure of our members to asbestos in the workplace.
2. Designation of asbestos exposure locations and availability of protective equipment.
3. Recording and monitoring of employees exposed to asbestos.

Exposure of Workers to Asbestos

During the course of their duties many of our members are exposed or have been exposed to asbestos, in many cases without even realizing it.

Large numbers of people work across Ontario in Bell Canada buildings that were erected or re-constructed during the 1950's and 1960's. These people include operators, dining service employees, central officemen, clerks, Northern Telecom installers, and other Bell workers who come into them periodically to perform work.

To the best of our knowledge all these buildings have not been checked to identify and remove asbestos hazards. During 1980 we had the experience of all workers being moved out of the Bell facilities at 50 Eglinton Avenue East in Toronto for over three months because an asbestos hazard was discovered and corrective work undertaken. Although the asbestos exposure problem in this location was aggravated by building re-construction, we are concerned that a problem may have existed for some time. We are similarly concerned that problems could exist in many other locations where asbestos is in use. At this point in time we do not have adequate assurances that a thorough investigation of all buildings has been done and that corrective action has been planned or undertaken where warranted.

Indeed, we believe such a program has not been undertaken by the employer. We say this because of reports we have been receiving from our members. For example, we have found that there is an asbestos hazard in nearly all the small Community Dial Offices (CDO) in Ontario. In these CDO's the walls are panelled with asbestos sheeting and, in some places the ceilings and washrooms. The asbestos sheeting does not have any incapsulation. Indeed in many places even the joints between panels are not finished and damaged walls have not been repaired. Many of our Local officers and stewards have raised this matter with their management but nothing has been done.

Attachment 1 is a list of some of the CDO sites that have this asbestos problem.

Our members who perform installations or rearrangement of telephone services and other communications services frequently encounter asbestos problems. These occur generally in false ceilings and other confined spaces through which they must either crawl or pull cables. This situation poses a severe hazard because in most cases they are unaware of any hazard on these customer's premises until after they are into the work and are already exposed. We see this as being an ongoing hazard as long as service people such as these are called upon to work in these older buildings.

Designation of Asbestos Exposure Locations and Availability of Protective Equipment

Last year when the asbestos hazard was found in some schools a major project was immediately launched to check all schools and to undertake corrective action where hazards existed.

We believe the same should be done for all industrial undertakings. Rigid standards regarding asbestos in such buildings should be set. The owners of buildings which house industrial undertakings should be required to perform an immediate check to ensure standards are met. We ask that the Royal Commission recommend this in their report along with a mandatory compliance period to meet standards.

There should be a requirement to post visible warnings at hazard locations and for employers to notify workers who may be sent to work in such areas during the interim period until standards are met.

Employers should be required to notify workers at the time they are being assigned to work in such locations that they have the right to refuse the assignment.

Employers who neglect to advise workers of such hazardous assignments and of their right to refuse should be subject to heavy automatic fines.

Where workers accept the assignment approved respirators must be provided along with disposable protective clothing for the worker to change into for the assignment. We have found in the past that protective equipment supplied to workers being exposed to asbestos has been no more than that supplied for any other dusty work environment.

Recording and Monitoring of Employees Exposed to Asbestos

Many workers who were exposed to asbestos later in life develop serious health problems. Some of these conditions could be identified and more serious complications could be arrested if treated in their early stages.

However, this requires a keeping of records of persons who were exposed to asbestos hazards and then a periodic monitoring of their health conditions thereafter.

Many of our members have been exposed to asbestos hazards and yet no records of this are kept for later treatment or WCB claims. In part this was due to lack of awareness by the workers, lack of concern by employers or because permissable standards were not as tight as they should have been.

We have already mentioned earlier the asbestos problems at 50 Eglinton Avenue East in 1980 that necessitated a 3 month evacuation. The records of the people who worked at this location should indicate clearly how long they worked at this location and that they were involved in a condition that required evacuation.

We have had instances in Northern Telecom where, over the years, installers were required to cut, with a hack saw and without any protective equipment, compressed asbestos fibre board to cover cable holes in telephone central offices. A Company "technical study" in 1977 dismissed this as being no hazard on the basis that the average fibre count was 3 fibres per cc of air for particles greater than 5 microns in length and because the maximum individual worker's annual exposure was 6 hours. Firstly, the standard of 3 particles per cc of air is worse than the present Ontario standard. Secondly, many individuals were exposed for periods far in excess of 6 hours per year. Obviously many workers in this enterprise suffered potentially harmful exposure yet no record exists and no follow-up monitoring has ever been undertaken or is possible without records.

The Royal Commission should recommend that employment records of workers who work in a potentially hazardous asbestos condition must completely and accurately reflect the periods of such work. Where it is possible, records should be compiled for past periods of work under such conditions.

In addition, persons who have worked in conditions where the latest standards for asbestos were not met when the work was performed should have medical checks annually for any of the diseases and health conditions which are attributable to asbestos exposure and necessary treatment prescribed.

All such medical expenses should not be at the expense of the worker. They should be paid by the employer where this work was performed or, if this becomes not feasible, by the WCB or OHIP.

On behalf of the Communications Workers of Canada we respectfully submit our concerns and recommendations to the Royal Commission.

Peter Klym,
Vice-President,
Ontario Region.

January 16th, 1981

Attachment 1

CDO SITES WITH ASBESTOS PROBLEMS IN ONTARIO

Apsely
Ayre
Bobcaygeon
Brechin
Bridgenorth
Buckhorn
Burford
Burleigh Falls
Campbellford
Cannington
Cayuga
Coboconk
Cookstown
Fisherville
Hastings
Havelock
Jarvis
Kirkfield
Lakefield
Mount Albert
Mount Pleasant
New Dundee
Norwood
Omemee
Plattsville
Scotland
Selkirk
Stevensville
Wainfleet
Waterford
Waubashene
Wellandport
Woodville

ROYAL COMMISSION ON
MATTERS OF HEALTH & SAFETY
ARISING FROM THE USE OF
ASBESTOS IN ONTARIO

SUBMISSION OF THE
ASBESTOS VICTIMS OF ONTARIO

GOLDEN, LEVINSON,
Suite 1908,
101 Richmond Street West,
Toronto, Ontario.

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101 Richmond St. W.,
Toronto, Ontario.

The Asbestos Victims of Ontario are a group of workers, ex-workers and widows of workers who contracted asbestos related diseases while employed by Canadian Johns-Manville West Hill, Ontario. For many years we have made known to the government our personal concerns about the dangerous use of asbestos products in Ontario and we now welcome the opportunity to participate in this Inquiry. Our principal concerns are four fold:

1. the inherent danger to the health of those who work with asbestos and asbestos products;
2. the lack of adequate health and safety standards to protect asbestos workers;
3. the failure of the Minister of Labour, the medical profession and the Canadian Johns-Manville Corp. to warn prospective employees of the dangers of working with asbestos, and to properly monitor and advise asbestos workers of the effects that such exposure was having on their health;
4. the discriminatory manner in which the W.C.B. compensates victims of asbestos related diseases.

It is our expectation that parts 1 and 2 will be adequately dealt with by others making submissions to

this Inquiry and we do not intend to deal extensively with these areas at this time.

Our submission on part 4 dealing with compensation for persons injured by asbestos related diseases will be dealt with in our further submission in due course and in accordance with the Chairman's directives in his opening remarks of October 31, 1980.

At this time we intend to focus on part 3 mentioned above and proffer the following observations.

Work with asbestos and asbestos related products began late in the 19th Century and was a growing industry by the early years of this Century. The first modern reports of the dangers of working with asbestos came from the textile workers in England and France in the early 1900's and were noted in U.S. Department of Labour Bulletins. The first legal claims for damages by an asbestos worker was filed in the U.S. in 1927 and in 1933 asbestosis was specifically made a compensable disease in the United Kingdom.

In the 1930's, the John's Manville Corporation in the United States settled out of Court at least eleven asbestos related claims. Clarence Borel's widow was awarded $79,436.00 in 1969 for her husband's death resulting from asbestos poisoning and as of March 1, 1978

there were 623 asbestos related law suits in progress in the United States.

The dangers of working with asbestos have been known to the government, medical profession, and the employers for many years, yet this information is not widely disseminated to employees who must work with or are exposed to asbestos products on a regular basis or to those who live near asbestos processing plants. On the contrary, evidence given before the United States Sub-committee Hearings on Asbestos Health Hazards to Schoolchildren suggests that there was a conscious policy on the part of the Johns-Manville Corporation and Roybestos Manhatten to suppress information showing the damaging effect of exposure to asbestos fibres.

Moreover, evidence obtained from the testimony of Dr. Kenneith Wallace Smith, medical director of the Johns-Manville Corporation in the United States from 1949-1966, indicates that it was the Company's policy that workers with asbestosis not be informed of their illness as long as the man feels well and his physical condition remains good. This policy of non-disclosure was continued in the United States at least until the last decade. In 1975 a California Supreme Court jury awarded Mark Vela, a former Johns-Manville employee in

Pittsburg, California a $350,000.00 judgment for negligence against the plant doctor for failing to inform Mr. Vela that he had contracted a pulmonary disease associated with asbestos fibre.

The Canadian Johns-Manville Corporation seems to have proceeded on the same basis of non-disclosure of the inherent health risks involved in working with asbestos and also of non-disclosure of the deteriorating medical profiles of their workers. When an employee begins work he is examined by a doctor who has an office on the company's premises and is required to have a chest X-ray by the Occupational Health & Safety branch of the Department of Labour. Annually the employees are given a cursory medical examination by the company doctor on the company's premises and an annual X-ray by the mobile unit of the Occupational Health branch. The results of these examinations and the X-rays taken were retained by the company and not made known to the various employees, even when requested to do so. As a consequence, many employees who are suffering from asbestos related diseases in the 1970's have discovered that the symptoms of their disease was identifiable on their chest X-rays as early as 10 or 15 years prior to their illness having been finally diagnosed.

The withholding of medical evidence showing symptoms of developing asbestosis or other diseases by

Canadian Johns-Manville and the Occupational Health branch is a practice which is continuing until this day. The Krever Commission investigating the use of health records in this Province has recommended that such records be available to the patient or their legally authorized representative. It is our belief that in the case of asbestos workers there ought to be a positive obligation placed on all persons, companies and agencies involved with the monitoring of medical health of asbestos workers to forewarn them of the dangers of working with asbestos and to inform them in some detail of the state of their medical health following annual medical examinations. Furthermore, these examinations should be conducted by independent medical persons who are particularly informed concerning the nature of asbestos related illness. Only in this way will asbestos workers be informed at the earliest possible time of developing symptoms of asbestos diseases.

The early diagnosis of asbestos related medical problems will certainly diminish the number of workers crippled and killed by asbestos related diseases in Ontario. It will not however prevent otherwise healthy employees from becoming ill as a result of exposure to asbestos dust. This can only be done if there are strict health and safety standards enforced in the various

working environments which use asbestos products, and if the standards are set by independent persons who are not reliant on information provided by the companies themselves.

The Asbestos Workers of Ontario have a direct personal interest in seeing that:

1. manufacture of asbestos products is regulated in such a manner as to insure the least possible health hazards to the workers involved;
2. workers are informed of the inherent dangers of working with asbestos products;
3. the health of asbestos workers is monitored in such a way that they will be informed at the first indication of a developing asbestos related medical problem;
4. should such a medical problem develop, the worker or their family will be adequately compensated for the damages suffered.

We are prepared to do everything possible to insure that the health and safety of asbestos workers in Ontario is improved, and look forward to the opportunity of orally expanding on our written submission to this Commission at the appropriate time.